THE AUTOMOBILE

WEEKLY — NEW YORK—THURSDAY, FEBRUARY 14, 1907—CHICAGO — 10 CENTS

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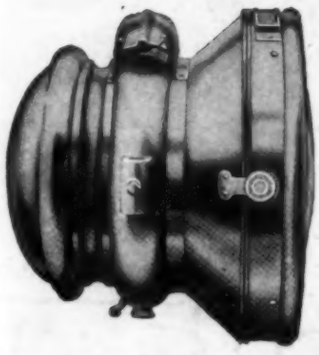

The Jewels of an Automobile

They beautify—they dignify and stamp your car as a car of QUALITY.

STANDARD OF THE WORLD for BEAUTY, EFFICIENCY and DURABILITY.

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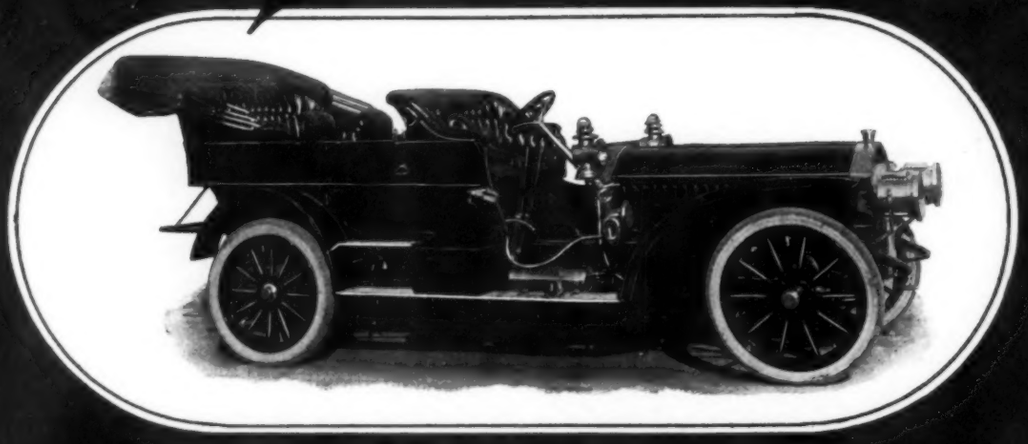

NAPIER MOTOR CO. OF AMERICA

Boston, Mass.

RACYTYPE

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embraces all the good features of Mora construction, with the highest grade, least-liable-to-trouble ignition system possible to install in a Motor Car. La Coste high tension Magneto works on one set of spark plugs.

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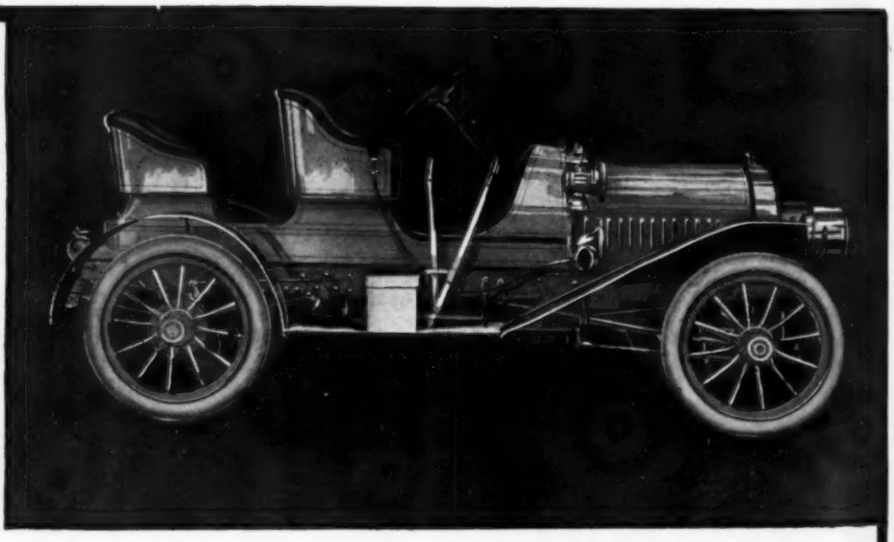

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SPECIFICATIONS—Four cylinder vertical Engine, 24 horse power, water cooled, 98-inch wheel base; 32-inch wheels. Imported Magneto, two Individual Passenger and Rumble Seats. Weight 1750 pounds. Entirely mud proof, Price $2300. Send for folder.

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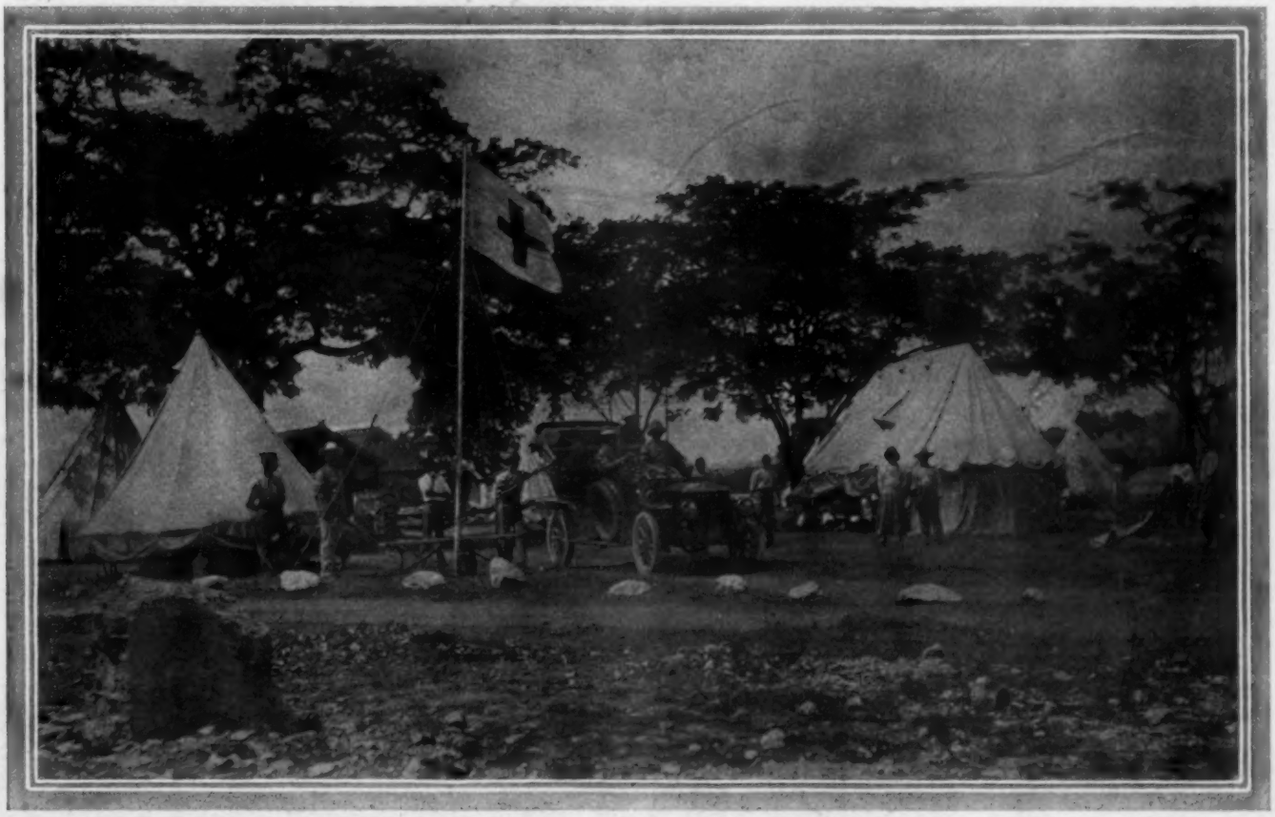
THE AUTOMOBILE

VOL. XVI. NEW YORK—THURSDAY, FEBRUARY 14, 1907—CHICAGO No. 7

JAMAICA AS JUST SEEN BY AN AMERICAN AUTOIST

ALL of us have long known that somewhere in the West Indies is an island called "Jamaica." As to just where it is and what it is like, few people—except those few who indulge in winter tropical trips—ever knew or cared until one day last month the cable brought the news that a disastrous earthquake had occurred there and had practically wiped out of existence the city of Kingston, the capital of the island. For two or three days we read of the disaster and of the relief measures being adopted, and then were stirred by the boorishness of Swettenham, the Governor of the island, who treated a representative of this government in such an unseemly manner. The attention of automobilists was attracted to a line in the news from Kingston to the effect that "an automobile was doing splendid service in the work of relieving the sufferers." With the return to this country of Dr. William F. Bacon, of York, Pa., and his companions, not only are we informed concerning the part which the automobile played after the catastrophe, but also we learn that Jamaica has a claim upon the attention of autoists, such as few other localities possess.

Dr. Bacon, with three friends, sailed for Jamaica on the first boat which left New York after the earthquake. He was commissioned to find the body of one of his patients whom the first dispatches reported as being killed. On arriving at Port Antonio, on the north shore of the island, four days later, he re-



THE PRINCIPAL HOSPITAL CAMP IN THE OUTSKIRTS OF KINGSTON.—WHITE STEAMER STARTING ON ONE OF ITS MANY TRIPS.

THE U. S. CONSUL DID MUCH DESPITE THE IRASCIBLE GOVERNOR.

ceived the reassuring news that his patient was unharmed, and had, in fact, started for the States. And right here it should be made plain that the action of Governor Swettenham was in no way typical of the attitude of the other insular officials. No sooner had the Mayor of Port Antonio heard that a physician had arrived, than he came to see Dr. Bacon and besought him to lend his aid to the local physicians.

"I will do anything you want," replied the doctor, "and go anywhere you say."

"We have no accurate knowledge of conditions in the interior of the island," replied the Mayor. "The negroes report great loss of life in the landslides which occurred in the mountain districts."

"Have you a motor car handy?" queried the doctor, having in mind the necessity of quick transportation.

"The only car in town is Victor Camp's White steamer," replied the Mayor. "Camp's machine has been busy ever since the earthquake, but I guess he will accommodate you."

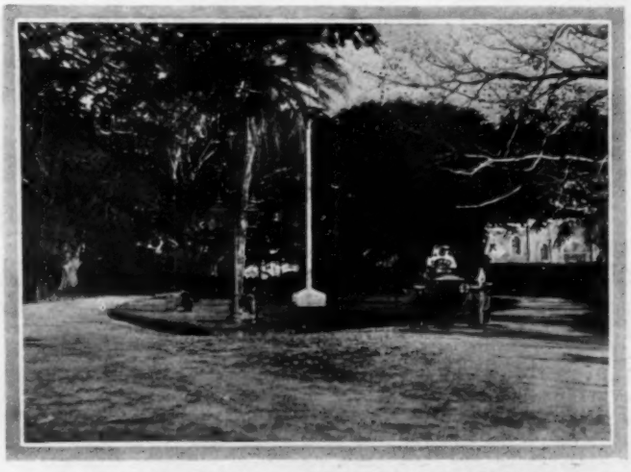
The Steamer Was a Time-saver.

In less than two hours after the doctor landed, he and his friends were on their way across the island in Camp's "steamer," with the owner at the wheel. As soon as they reached the mountain districts they found the negroes in a state of wild trepidation. Monstrous rumors were afloat regarding conditions, not only in the island, but also in the outside world. For example, one negro, the owner of a prosperous plantation, asked if it was true that the Isthmus of Panama had sunk into the sea. Actual loss of life or limb caused by the landslides had been very slight,

ONE OF THE EARTHQUAKE VICTIMS RECEIVING MEDICAL ATTENTION.

but still there was plenty of work for the doctor. Every physician in Jamaica had gone to Kingston immediately after the earthquake, and the rest of the island was entirely without medical aid. Mr. Camp's automobile carried two Red Cross flags, and their significance was appreciated by the natives. At every little cluster of huts some invalid would be brought forth for attention. The reverence of the simple folk for the doctor was very affecting. The families of the sick persons would approach the car on their hands and knees and beg that the doctor might effect a cure. Night came on while the party were engaged in their beneficent work, but such is the brilliancy of the tropical moon that the doctor continued to administer until his supply of medicine was exhausted. The car had started with a well-filled medicine chest strapped behind on the luggage carrier, but even this supply proved insufficient.

Finally, the tourists reached the Constant Spring Hotel, six miles inland from Kingston, and here they spent the night. In the morning Dr. Bacon and his companions reported for duty at the government hospital at Kingston, and here their labors began anew. The tired and overworked hospital staff had an immense range of territory to cover. Every day they had to make the rounds of the refugee camps and new cases in the outlying districts were daily requiring treatment. No means of transportation had been at their disposal, except donkey carts. Mr. Camp immediately put his car at the disposal of the hospital corps, and



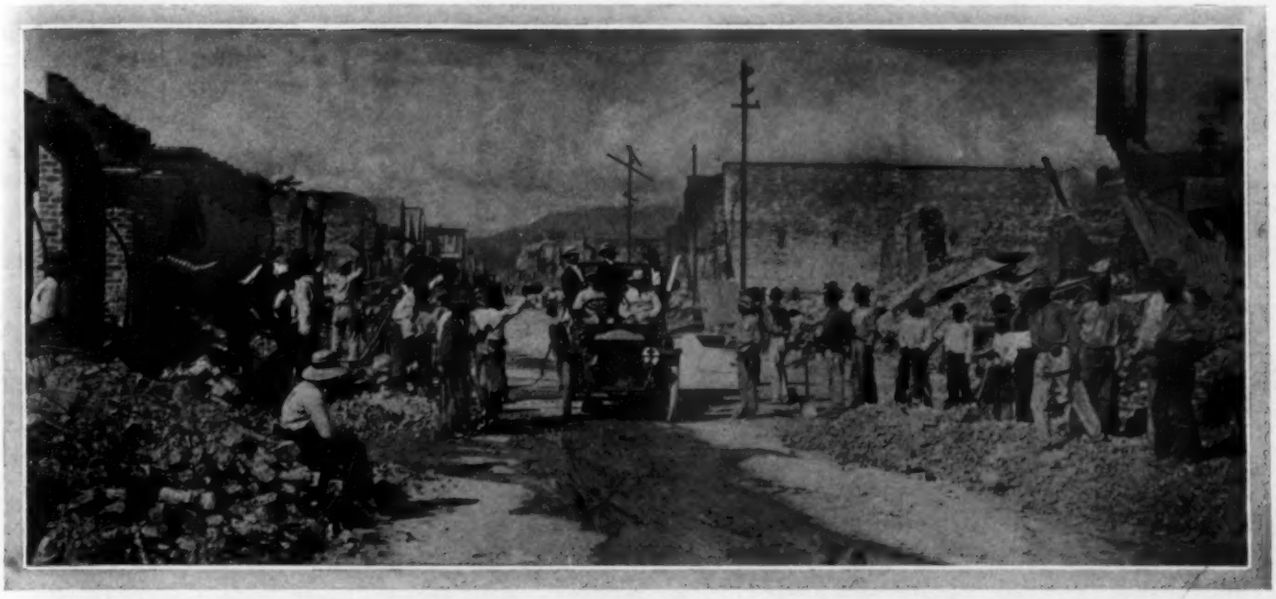
RESIDENCE OF THE GOVERNOR WHO DECLINED AMERICAN AID.

thereafter every member of the staff was enabled to complete his work in about a third of the time previously required, with a consequent gain in the amount of time available for much-needed rest. Furthermore, as one of the staff expressed it, "A ride around the city in that car is as refreshing as a two-day furlough." It was also a great treat to the faithful Red Cross nurses, who had labored unceasingly since the earthquake, to go to and from their work in the swift and silent machine. Then there were medical supplies of all kinds to be distributed, and in this work, too, the machine proved itself just as useful as it did at San Francisco.

Finally, after four or five days of constant effort, the medical situation was brought into such satisfactory shape that Dr. Bacon and his party felt that they could, with justice, think of returning. Bearing with them an official letter of appreciation from the hospital authorities, the tourists started back toward Port Antonio, proceeding in a leisurely manner, and by a circuitous route, observing meanwhile the character of the country and of its inhabitants, particularly as regards the desirability of the island from the automobilists' point of view.

Jamaica Has Excellent Roads.

Naturally, the roads first commanded attention. It will be a surprise to people in this country to learn that in far-off Jamaica all roads are level and built of stone, and they reach every nook



EAST STREET, ONE OF KINGSTON'S THOROUGHFARES AS IT LOOKED AFTER THE EARTHQUAKE HAD DONE ITS DESTRUCTIVE WORK.

and corner of the island. The material used is a white stone, which is soft and crushes readily. This stone is very porous, and the heavy tropical rainfalls disappear from its surface almost instantaneously. Furthermore, this style of road is very easy on automobile tires. Mr. Camp's White has been over 10,000 miles on one set of tires, and he expects to get from them several thousand miles more of service. It is doubtful if any road in this country can compare with those which prevail throughout Jamaica. The entire interior of the island is very mountainous in character, yet the ridges are crossed by easy grades, and it has not been thought necessary to build "water-brakes," the bane of the autoist.

Another important point which the tourist noted was the security of life and property in

FIRST SHOCK STOPPED THE CLOCK.

the island. Jamaica has been a peaceable English colony since 1638, administered by an officer appointed by the crown. The English law, as well as the English language and customs, prevails in the isuand, and respect for the law is absolute on the part of the most ignorant inhabitant. The island is well patrolled by native constabulary, and the records of the local courts show that almost the only offenses are petty larceny cases.

An overwhelming preponderance of the population of the island is negroes, the descendants of slaves imported from Africa. During the last century there were brought from India a considerable number of coolies, who maintain their original religion and customs, and do not intermarry with the negroes. These interesting people are found in small

TROPICAL FOLIAGE IN PRODIGAL QUANTITIES IS FOUND IN THE INTERIOR OF THE ISLAND, WHICH CONTAINS EXCELLENT ROADS.

IT IS DELIGHTFUL ALONG THE SHORE ROAD BETWEEN PORT ANTONIA AND ARMOTTA BAY.

colonies throughout the island. Both the above classes are honest folk, and their attitude toward the automobile tourist is one of profound respect. The natives live in little bamboo huts, which are so well distributed over the island that one or more of these little homes is almost always in sight.

The roads lead past groves of banana trees or through orange or coffee plantations, and the numerous forms of strange tropical plants are a constant source of wonder and delight to the tourist. In the mountain districts the road very often parallels some beautiful stream with innumerable waterfalls. Every visitor to Jamaica, starting with Columbus, who visited the island in 1494, has spoken in unbounded praise of its great natural beauties.

Jamaica Has a Sensible Auto Law.

Jamaica has a motor-vehicle law, and it is one which the legislators of our States might well take as a model. To those who have had experience with our State Legislatures, it is a genuine surprise to learn that distant Jamaica should actually have in force at the present time a law such as we think of only as an ideal which may or may not be realized in years to come. The only speed limit stipulated in the Jamaica law is that "No person shall drive a motor car on the public highway recklessly, or negligently, or at a speed or in a manner which is dangerous to the public." The remaining provisions of the law provide simply for registration, for lamps, for "a horn or other instrument for giving warning," for the licensing of drivers, and for stopping in case of accident.

In still another way the Jamaican government has shown a more friendly interest in automobiles than have our State governments. Within the last two months the insular authorities have issued a complete and detailed guide-book of the roads of the island, giving the mileage and description of all the turns. In compiling this work, they used as a model the guide-book compiled for last year's A. A. A. tour, with the style of which most automobilists in this country are familiar. Efforts are being made by the Jamaican automobilists to attract American auto tourists.

As regards the destruction wrought by the earthquake, it should be stated that the damage was confined to Kingston and to the immediate vicinity. Before another year has elapsed even that city will again present its wonted commercial activity. It was, before the earthquake, the largest city in the British West Indies, having a population of over 55,000.

Although the climate of Jamaica is salubrious all the year round, the best months to visit the island are from December to March, inclusive. Tourists will find at Port Antonio as good a hotel as in any of the summer resorts of this country, and in many of the other coast towns are hotels which cater to the tourist traffic. The island may be reached from New York City by any one of three steamship lines; the Hamburg-American, the Royal Mail Steam Packet Company, and the United Fruit Company. Port Antonio is about 1,440 miles from New York, and the voyage is made in four or five days. Within 24 hours after leaving New York, the traveler is in the midst of the Gulf Stream and is enjoying delightfully warm and balmy atmosphere.

Arriving at Jamaica, the custom-house formalities take only a few seconds, although on his return to his native country the traveler must be prepared for a long array of formalities.

From the foregoing description—of the good roads, of the friendly attitude of the government, of the attractions of a tropical country, and of the accessibility of the island—it is evident that Jamaica well merits the favorable attention of the autoist.

RANCHMEN TAKING TO THE AUTO.

FORT WORTH, TEX., Feb. 11.—Automobiles as means of travel to and from ranches located at some distance from railroads are becoming more and more popular in this State every day. A number of the large ranchmen of West Texas have now almost given up the pony in favor of the automobile. Trips over the ranches can be made for miles, the ground being smooth enough in most places for the machines to travel anywhere. Speed and comfort are both much greater than formerly.

A TYPICAL MOUNTAIN ROAD. FRINGED WITH BANANA TREES AND A WEALTH OF FOLIAGE.

CHICAGO'S SHOW WAS SUCCESSFULLY GRATIFYING

CHICAGO, ILL., Feb. 9.—With an attendance that crowded both Coliseum and Armory to capacity to-night the Chicago show ended its successful eight days and nights of telling the Westerners about the 1907 automobiles. It would appear from the attendance figures and numerous sales—especially the latter—that as long as shows continue there must be a national event in Chicago as well as in New York City. Manager Miles certainly sprang a surprise in the artistic dressing which he gave the two buildings, and to the exhibitors there was more gratification in the matter of attendance of agents from the middle and extreme West.

Herewith are some of the expressions of opinions from members of the N. A. A. M. Executive Committee:

Thomas Henderson, Winton Motor Carriage Company.—"I'm a veteran of three shows this season, so to speak. I was at Olympia in November and at the Garden in January, but I haven't seen anything to surpass this. I think it's the most creditable effort ever made in this country, whether in Chicago or elsewhere, and the thing that impressed me most forcibly about it is the fact that it is more in keeping than others have been. There is an atmosphere about it that was lacking at the Garden. It typifies the automobile more to my mind than the New York show did."

W. E. Metzger, Cadillac Motor Car Company.—"The Chicago show has been a great success, typical of the West, which is buying automobiles in far more generous quantities than ever before. And the Westerner takes a whole-souled interest in the auto which he makes no effort to conceal. He is out to see and take note, which is probably one of the reasons why the Western show is such a popular affair."

S. T. Davis, Jr., Locomobile Company of America.—"The Chicago show must be set down as one of the greatest benefits to the industry. The numerous sales tell their own story where the business end of the show is concerned, and as for the popular side of it, anyone who visited the Coliseum or the Armory any time during the week hardly needs to be told what a success the show has been from that point of view."

Benjamin Briscoe, Maxwell-Briscoe Motor Company.—"It has New York show beaten a mile, to put it in the vernacular, and my honest opinion is that this country has never seen anything to equal it, much less to surpass it. It certainly does the industry credit and results in benefit that is felt the remainder of the year. This is the biggest thing Chicago has ever done, and that means the biggest that has ever been carried off in this country, to my way of thinking."

Ezra Kirk, E. R. Thomas Motor Company.—"I have attended shows of different kinds for the last ten years or more, but I have never seen anything in the line of an industrial exhibition that came anywhere near equaling this. It has all others that I can recall totally eclipsed from every point of view, and that is saying a great deal. It took the automobile as an incentive to show what could be done in that way, but in this case it has surpassed its own record manifold."

Windsor T. White, the White Company.—"Whether considered from the amount of business accomplished, the decorative setting, or the attendance, the Chicago show has proved a most gratifying success. It is by far the biggest thing ever attempted in the way of an industrial exposition by any organization, no matter how large or influential, and doubtless the present event will go down into history as having set a standard that it will be found difficult to surpass."

C. C. Hildebrandt, Stevens-Duryea Company.—"The show has undoubtedly set a high-water mark in every respect. Shows can hardly be bigger until buildings increase in size, and it is doubtful if there will ever be one roof capable of sheltering the industry, but this demonstrates what can be done both in quantity and quality. In my opinion there has seldom been a more creditable event carried off anywhere in this country."

William R. Innes, Studebaker Automobile Company, was of the opinion that the Chicago show was relatively an event of far more importance to the two-thirds of the country west of it than the New York show was to the one-third of the country between Chicago and the coast. "It seems to me that the show means more to Chicago than it does to New York, though, of course, I'm not a resident of this part of the country and cannot speak from the viewpoint of one," he added. "It is certainly a great success and more than fulfills my expectations."

A. L. A. M. ENGINEERS ELECT AND DISCUSS

CHICAGO, ILL., Feb. 6.—After the business of the annual meeting, held at the Chicago Athletic Association, and at which A. L. Riker was unanimously reelected president, and W. S. Clarkson continued as secretary, was disposed of, the engineers of the Association of Licensed Automobile Manufacturers and the representatives of the manufacturers who had been invited to attend, took up the discussion of carbureters, particularly with regard to the use of alcohol as a fuel. There was considerable difference of opinion expressed, both as to the availability of alcohol for automobile use as well as on the subject of carburetion generally. Following this there was a discussion on the subject of springs, with which was included a talk on clutches and shock absorbers, but the matter of suspension proved to be one of such absorbing interest that a very large part of the time was devoted to it. Experts from a number of steel and spring manufacturing concerns were present and gave illustrated talks on the subject of treatment of spring metals. It was conceded that the front springs were chief, if not only source of trouble.

During the informal discussion that followed, the fact was brought out that there will be several prominent contenders in the elimination trials for the Vanderbilt Cup this year who have not previously competed, as well as others who competed two years ago and will again enter, the plans of the builders of the Royal Tourist being the most recent development in this direction. The trend of the discussion indicated that the subject of racing would be considered of far greater importance during the coming year than ever before. As it was not found possible to give the subjects above referred to the amount of time they deserve at the Chicago meeting, the discussion will be continued at the next monthly meeting to be held at the association rooms in March, and this will be supplemented by a discussion of the subject of racing, it being a matter of common knowledge that several high-powered cars are in prospect for this year's Vanderbilt. The following members were present:

Edgar Apperson.	Frank Johnson.	J. S. Worthington.
Elmer Apperson.	G. P. Barrett.	J. H. Jones.
W. H. Little.	J. A. Becker.	G. W. Bennett.
Reynolds Janney.	B. A. Becker.	A. L. Riker.
E. C. Sweet.	John W. Wilkinson.	A. W. Robinson.
F. W. Hawes.	F. M. Nutt.	A. C. B. King.
V. M. Gunderson.	G. N. Misner.	C. C. Hildebrandt.
G. W. Gunn.	G. W. Haas.	C. H. Halkins.
Charles Clifton.	Robert Jardine.	George E. Sparks.
Daniel Ferguson.	Alden Sampson.	E. P. Chalfont.
Harold L. Pope.	George E. Mitchell.	H. D. Church.
W. G. Gilder.	E. T. Birdsall.	H. E. Coffin.

BRISCOE NOW LEADS THE INDEPENDENTS

CHICAGO, Feb. 7.—At the largest and most enthusiastic meeting in its history, the American Motor Car Manufacturers' Association in annual session selected Benjamin Briscoe, of the Maxwell-Briscoe Motor Company, as chairman of the committee of management for 1907. Mr. Briscoe has been a member of the association since its inception, and last year was chairman of the show committee. His remarkable strides in the motor car manufacturing field have made him one of the most important figures in the industry, the growth of which has astonished the world.

BENJAMIN BRISCOE,
Chairman A.M.C.M.A. Committee of Management.

ALFRED REEVES,
Re-elected General Manager A. M. C. M. A.

James Couzens, of the Ford Motor Company, who has been chairman of the committee of management for two years, declined a re-election. In appreciation of the good work he has done, the association passed a resolution of thanks and elected him an honorary member of the committee.

That the association has been doing work for its forty members during the past year was shown by the report of Mr. Couzens and by the heads of the various committees. The chairman's report showed that the association has nearly doubled its membership during the past eight months, and the list of forty makers now holding membership is certain to be largely increased during the next few months. Optimistic reports were submitted by the treasurer and by the committees on membership, agencies, good roads, and legislation, standardization, runs and tours, freight and transportation, advertising and shows. A general feeling of satisfaction was expressed at what had been accomplished during the Couzens-Reeves administration.

The official report of the meeting contains this paragraph:

"The opinion was universal that the Chicago show being held in February is much too late for general benefits. It is neither a wholesale nor a retail affair, and there were many reasons advanced why it should be changed to November or December. This gathering of strength in favor of early shows (the original idea of which was first put into operation by the American Association) is gathering followers every day. Of course, if the Chicago exhibition was run in November or December it would necessitate a change of date for the Garden show in New York. The Grand Central Palace exhibition in New York last December was such a pronounced success from a business point of view—notwithstanding the talk of decorations, etc., these shows are held primarily for business and to stimulate the interest in automobiling—there seems no good reasons why the affairs should not be conducted in November or December. This will be especially apparent next fall with the fewer changes to be made on the 1908 models. The proof of this reasoning was offered by the report of the December show in New York, which, besides drawing a record number of exhibitors, an unprecedented attendance of agents and retail buyers, permitted a profit dividend of 45 per cent. in addition to an original discount of 20 per cent. to members of the association."

Three members were elected to serve three years on the committee of management: Benjamin Briscoe, Maxwell-Briscoe Motor Company; R. E. Olds, Reo Motor Car Company; H. O. Smith, Premier Motor Manufacturing Company. Roger J. Sullivan, of the Wayne Automobile Company, was chosen to fill the vacancy caused by the resignation of A. C. Newby, of the National Motor Vehicle Company, who asked to be relieved of association responsibilities to give more attention to his business interests.

After the general meeting the business session of the committee of management was held, when plans for an active year were discussed and the following officers chosen: Chairman, Benjamin Briscoe; vice-chairman, R. E. Olds; treasurer, H. O. Smith; auditor, Roger J. Sullivan, and general manager, Alfred Reeves.

It is understood that the American Association had some idea of shortening its name, and several variations were suggested, one of which may be adopted at some future date.

NEXT WEEK'S LOCAL SHOWS IN VARIOUS CITIES

CLEVELAND SHOW WILL HAVE "DOLLAR" NIGHT.

CLEVELAND, O., Feb. 9.—It has been decided to follow the lead set by New York at the Garden in January and have a "dollar night," the general admission during the evenings also being advanced to 50 cents. For the afternoon the admission will be 25 cents as heretofore. The big Central Armory is being tastefully decorated for the show which opens on Monday, February 18, and continues all the week, and improvements are being made in the entrances and the heating arrangements, so that the building will be more comfortable than it has been during previous shows. The conflict with Buffalo did not reduce the exhibitors' list.

ELECTRICAL DISPLAY AT BUFFALO'S SHOW.

BUFFALO, N. Y., Feb. 11.—It has been decided by the officials of the Automobile Club of Buffalo, which conducts the automobile show in connection with the local trade association, to be held in Convention Hall next week, February 18-23, that the principal decorative piece shall be an immense reproduction of the badge of the local club. This electrical piece will contain at least 1,000 incandescent lights and will be 15 feet in diameter. It will extend from the balcony to the girders of the building. In the center of the hall will be placed a magnificent electric dome, containing about five hundred incandescent lamps of 16 candle-power.

One week from to-night the Buffalo's annual show will open. It has been decided by the committee in charge that the show will open at 10 o'clock in the morning and continue until 10:30 P.M. each night, instead of only afternoon and evening sessions as heretofore. On account of engagements, the show management will not get possession of Convention Hall until next Saturday at midnight, so that in order to open on time Monday morning there will have to be some tall hustling.

WORCESTER'S SHOW PREPARATIONS COMPLETE.

WORCESTER, MASS., Feb. 11.—Frederick N. Prescott, of Boston, chosen by the various automobile dealers of Worcester and the local militia companies to manage the automobile and power-boat show and military carnival to be held in the State Armory here the week of February 18, has completed all arrangements for the affair. The armory will be decorated in tropical fashion, and there will be 60 spaces for exhibits. All of these have been taken, the Worcester dealers receiving the first awards for space, and the Boston contingent taking the remaining space.

AEROCARS FILLED A PROMINENT SPACE AT CHICAGO.

THE SIDELIGHT SHOWED THE HARRISON TO ADVANTAGE.

SEEN AND HEARD AT CHICAGO.

One keen-eyed observer found out after considerable investigation that though all connecting rods looked alike, there was a difference. The rods themselves show no variety, there scarcely being a dissenting voice from the drop forging of I-beam section; it is the manner of fastening the big end that differs. In some this is of the usual hinge type and others of the marine type, the latter having numerous advantages, not the least of which is its greater ease and accuracy of adjustment to take up wear.

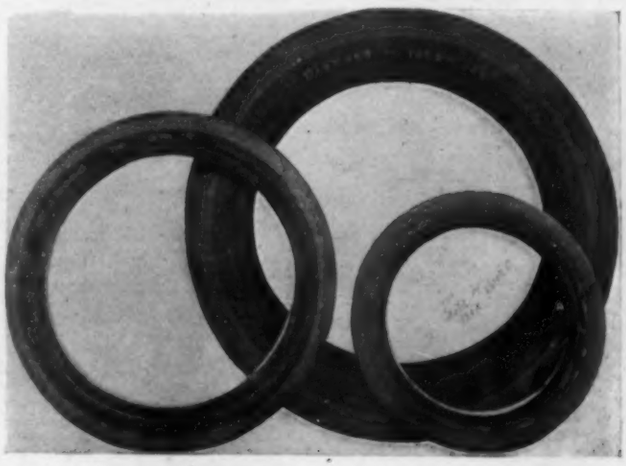
One of the most instructive sights uncovered by the interested and inquisitive visitor was that of a stump placed beneath the front axle of a car at the Adams Company's booth in the Armory. It graphically demonstrated what 16 inches clearance meant, as the stump was labeled with a sign to that effect, and to the very great majority of those who saw the latter it brought home to them for the first time the real meaning of clearance of any kind. It showed the kind of a road or lack of one that the Adams car could navigate without losing any of its under trimmings or disabling any part of its mechanism.

That Chicago is a man's show was never more strongly evidenced than by the attendance during the afternoon on any day of the show this year. Women there were, of course, but in nothing like the numbers to be found in the Garden at a corresponding hour of the day. During the afternoon at Chicago there was scarcely one of the gentler sex to 20 men, and what made this discrepancy very much more noticeable was the fact that a great many of the women were without male escorts. They came in couples and groups to see the show and these "hen parties" were greatly in evidence at a time when it would be thought there would be more of them. During the evening there was little to distinguish the Windy City attendance from that of New York on the score of representation of the sexes.

Talk at the show after Thursday, or in fact, immediately after the fact that the Deming trophy was missing from the Maxwell booth became public, was the query: "Who pinched Mercury?" As Mercury in just about the size of the missing statuette was in evidence all over the main floor by the score, this was thought to be a joke at first, but this did not prevent the private detectives at the building from holding up everyone with a package at the door until its contents could be examined. The statuette stands about 26 inches high and tips the scales at something like 25 pounds, so that it would not be exactly an easy thing to get away with. It was missed from its accustomed place on the show case flanking the main aisle shortly after noon Thursday. On Friday the press agent found Mercury.

Someone with a head for figures and nothing much else to do, got busy on the show about the middle of the week, and when he got through he had calculated the aggregate and the average power of all the cars shown. There were something like 500 machines in all staged, and he figured that their average power would be approximately 30 horsepower, making the total for the entire show 15,000 horsepower. The term still continues to confuse quite a number of the visitors. After much hesitation a woman approached one of the attendants at an exhibit and asked for an explanation of the term "60 horsepower." "Thank you so much," she said after the matter had been elucidated at length. "We only have one auto in our town, and the horses are not used to it yet. I thought probably 60 horsepower meant it might frighten that many horses a day."

One of the largest pneumatic tires ever manufactured was the star attraction at the exhibit of the Diamond Rubber Company, and the size of this giant of pneumatics certainly made tires of standard dimensions look like the veriest pygmies. Like the shoes and shirts of Brobdignagian proportions occasionally displayed in store windows as "attention attracters," it looked far too big to be real, though it was, as it was a replica of one of a set made for a large limousine built by the Westinghouse Company, and which tipped the scales close to the 6,000 pound mark. The dimensions are metric, and are 1,000 by 165 millimeters, which represent the approximate equivalent of 40 by 6 1-2 inches. The largest American tires regularly made are 36 by 5 inches, so that special machinery was necessary to turn out these monsters. How this greatest of all pneumatic tires looks in comparison with some of the more frequently used sizes—those that are seen every day—is strikingly pictured by the accompanying photograph of it posed with two others, one of which is the smallest size regularly made, 22 by 3, the other being a 30 by 3 1-2 tire, largely used on light-weight touring cars.



BIG DIAMOND TIRE AND ITS SMALLER BROTHERS.

GASOLINE CHEAPEST WITH PRESENT MOTOR

AS a part of the series of experiments being conducted from time to time by H. A. Grant and J. D. Maxwell, of the Maxwell-Briscoe Motor Company, to determine the relative efficiency and commercial value of various forms of fuels, three Maxwell touring cars made the run from New York to Boston,

A HALT BETWEEN SPRINGFIELD AND WORCESTER.

each using a different fuel, on January 28-30, the details of the trip having already been given in THE AUTOMOBILE.

The three cars employed for the test were standard Maxwell touring cars of the model of 1907, fitted with a double-opposed horizontal motor, the cylinders of which measure 5 by 5 inches, while the initial compression is 58 pounds to the square inch. These motors are nominally rated as having an output of 16 to 20 horsepower when used with gasoline as a fuel. Each car carried the same number of passengers and equipment, the weights being as follows: Car using gasoline fuel, 2,270 pounds; kerosene, 2,520 pounds, and alcohol, 2,750 pounds. The carbureters were all of the standard type regularly employed on the Maxwell cars, and no special devices were added in the case of those using fuels other than gasoline. No adjustments of any kind were found necessary at any time during the trip, the actual running time of which was 16 hours 20 minutes, and the distance covered 249 miles, giving an average speed of 15.41 miles per hour.

Owing to the heavy going, which was made considerably worse on that part of the route from New Haven to Boston by reason of the snow, which was almost a foot deep for almost 150 miles of the run, the gasoline consumption was unusually great and that of kerosene and alcohol correspondingly so, though it is probable that the proportion would not differ greatly, the test having been one of sufficient length to permit of forming an excellent idea of the comparative values of the fuels when used in the type of engine now current. The average mileage per gallon of gasoline was 10.1—a good showing in view of the road conditions; of kerosene, 7.4, and of alcohol 6.13 miles.

GETTING UNDER WAY FOR THE DAY'S WORK.

Every ounce of fuel that was used on each of the cars throughout the entire run was carefully noted by the observers, and these figures, taken in connection with those of the weight of the cars and distance covered, give some very interesting data regarding the cost per car mile and per ton mile for each fuel, these being shown by the appended table, which also gives the total amount of each class used and its cost:

Car.	Weight.	Cost per Gallon.	Total Consumption.	Cost of Fuel.	Cost per Car Mile.	Cost per Ton Mile.
Gasoline	2,270	$0.20	24.75	$4.95	$0.019	$0.0169
Kerosene	2,520	0.13	33.75	4.39	0.017	0.0139
Alcohol	2,750	0.37	40.75	15.07	0.06	0.0448

Almost twice the quantity of alcohol was required to travel the same distance as with gasoline and almost 50 per cent. more when kerosene was the fuel employed.

Taking the cost of the different fuels into account, the showing is even less favorable where alcohol is concerned, but it must be borne in mind that the engine was not particularly designed to use this fuel. Thus the cost figures out fully 2 1-2 times greater than that of gasoline and over three times more than that of kerosene, though there is not such a wide difference between the quantity of the latter required as compared with gasoline. Taking these figures as a basis, it is evident that alcohol would have to sell at 22 cents per gallon in order to compete with gasoline at 20 cents, even though used in a specially designed motor.

REPLENISHING THE FUEL TANKS OF THE ALCOHOL CAR.

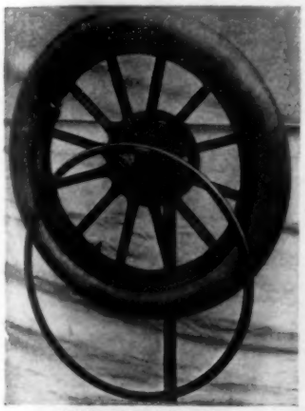
Many interesting observations were made as to the characteristics of alcohol when used in a gasoline motor, such as the fact that the motor apparently developed a great deal more power on hills than those using kerosene or gasoline by reason of the higher mean effective pressure, particularly owing to the short stroke of the motors employed. With the equipment fitted to the cars it was impossible to cause the motor to knock or pound by reason of advanced ignition, nor could the motor be stalled on a hill.

The chief object of the test was to demonstrate the availability of these fuels for use in the modern automobile motor without the necessity of any special devices or change of equipment, or, in other words, the fact that carbureters as at present designed are capable of handling fuels of varying densities without any radical alteration. It goes without saying that in a specially designed motor, having much higher compression and a longer stroke, alcohol would make a far better showing.

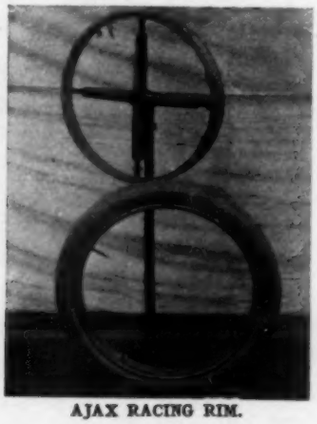
AMERICAN DETACHABLE TIRES AND REMOVABLE RIMS

By C. B. HAYWARD.

THAT the standard type of clincher tire on the standard type of rim has been able to hold its own despite the great amount of attention paid to mechanical forms of fastening and the number of devices of this nature that have made their appearance on the market within the past few years, may be taken



AJAX TOURING RIM.

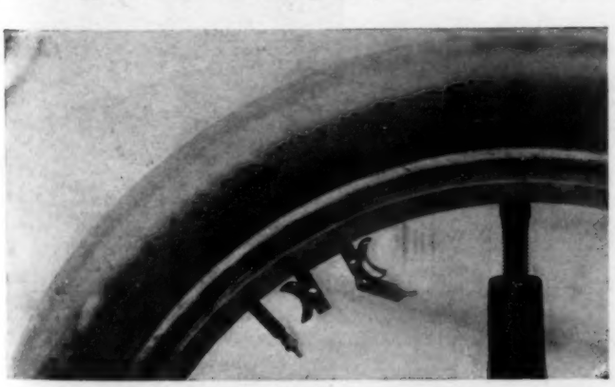


AJAX RACING RIM.

to mean that none of the inventions in question have proved to be the success anticipated for them by their sponsors, or that, being a success, they have not yet reached a stage where their merits have been brought home to a sufficient number of tire users to make their adoption general. The autoist who has not given the subject more than passing attention is apt to incline to the former view, while between this hasty assumption of failure, arising chiefly from the conservatism of the tire user at large, and the opinion of the mechanically fastened enthusiast which admits of the existence of no other form, there is the large army of every-day tire users who have no preconceived opinions one way or the other. It is in the ranks of the latter that the maker seeks for converts, and any man who has ever struggled with a refractory clincher in the large sizes now in vogue is more than willing "to be shown."

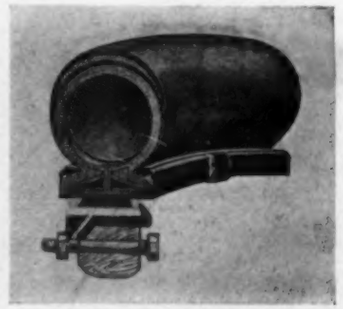
Experiments Date Back to Early Days.

To those who have followed the evolution of the pneumatic tire, as applied to the featherweight bicycle, through the various



CLIP WHICH HOLDS ENDS OF AJAX RIM TOGETHER.

stages it has been compelled to pass in order to make it capable of supporting many times its former total load and at speeds hitherto undreamed of, it is unnecessary to recall the fact that the mechanically fastened tire is not something of recent origin; comparatively speaking, of course, as the automobile tire of any sort is but of infantile age. The success of the clincher tire as finally developed with a stiff retaining bead, is but one of the numerous instances in which practice utterly flouts theory, for it did not appear possible that the force of inflation alone could ever suffice to prevent the tire being torn from the rim of a heavy car at high speeds, and this is what led makers to undertake the development of a mechanical type of fastening at an early day. Tire lugs were recognized as necessary to give that factor of safety required to avoid creeping with its attendant evil of stripped valves, but it was also realized that at best they were but a makeshift—without them the clincher was not safe and with them it did not represent a convenient or readily detached form of fastening, which is doubtless accountable for the fact that the lug nor anything akin to it has been perpetuated in any of the forms of mechanical fastening that have been developed in the interim. The problem is complicated at the outset by reason of the varying requirements to be complied with, in that the fastening must grip the tire like grim death, and yet permit it to leave the rim without the necessity of going through an operation similar to that of breaking into a safe deposit vault. It has been approached in a variety of ways, but with all their seeming differences it will be found upon investigation that experimenters have met, with few exceptions, upon a common ground where basic principles are concerned, which probably explains the general measure of success that has attended their efforts as represented by the devices now on the market. Daily experience alone will develop the type most perfect in its details.



SECTION VIEW OF FISK RIM.

GENERAL VIEW OF FISK RIM.

Progress Revealed.

As in many other things, while there were tire users galore who consigned the clincher tire and all its drawbacks to perdition every time they had occasion to remove or replace one on their cars, making vows in the meantime that they would be the first to adopt a better fastening if some genius would only condescend to evolve it, the manufacturer who did so encountered the inevitable and almost immovable inertia

PENNSYLVANIA DISMOUNTABLE RIM.

that waits "to see the other fellow buy it" before investing, when it came to the matter of marketing their devices. Anyone who had given the subject a thought, whether mechanically inclined or not, could hardly have failed to realize that some positive method of fastening was bound to come sooner or later, just as surely as the automobile is certain to displace other forms of transportation in time. But neither his knowledge of that fact nor his desire to see it materialized were sufficient to cause him to become an advocate to the extent of setting an example to his fellow-autoists by adopting any of the devices on the market for his own car. This is the situation that has confronted the manufacturers all along; there was so much dead weight to be moved that the progress toward popular favor was necessarily tedious, with the result of one year's work not greatly in advance of what had preceded it.

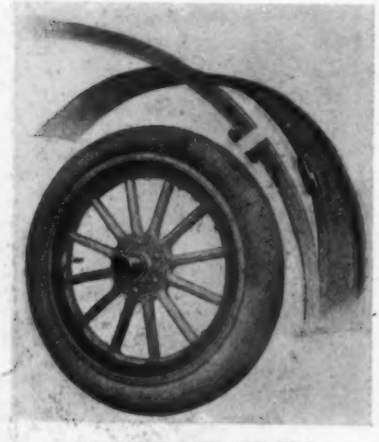
SECTIONAL VIEW MARSH RIM.

Then came the advent of the simon-pure removable rim for racing purposes, and with a start the automobile-using public woke up gasping to the fact that the simple device which had accomplished such marvelous results in the way of time saving, was nothing very different from that they had had before them at home for some time previous. Widespread interest in mechanical forms of fastening really dates from that occasion, such is the curious turn that things insignificant in themselves will sometimes give the trend of general opinion. With one or two exceptions the entire American tire industry was to be found grouped about the gallery of the Coliseum so that a better opportunity to see and compare the combined results of efforts along this line could hardly have been desired.

CROSS SECTION OF THE DUNLOP.

Dismountable Rims Not Numerous.

Where what is known as the true dismountable type of rim is concerned, this is not much in evidence, the makers of the Ajax and Fisk and of the Pennsylvania tires being the only ones to show devices of this kind. The remainder are in the class of detachable or mechanically fastened tires and the progress the latter have made is well evidenced by the fact that there is not a maker of tires to-day whose showing does not include something of this kind, whether of original invention or made under license from the patentees. The Ajax removable rim is only made in what is termed a racing type, designed for that extremely exacting service.



GOODRICH TIRE AND RIM.

This differs considerably from what is termed the Ajax "tourist rim," which is really a detachable tire. The wooden felly of the road wheel carries a fixed steel rim, permanently bolted ot it. To retain the removable rim, the inner edge of this fixed rim is raised and three grooves are cut across its surface. The tire is mounted on a separate steel rim, inflated and held in position in the usual clincher manner. The inner face of this steel rim carries three metal projections or wedges, corresponding to the grooves on the fixed rim. Special safety bolts, countersunk, are employed, and, as the tire never needs to be inflated on the wheel, a similar type of valve can be used. The tire mounted and inflated in advance on the detachable rim, the whole is slipped on the wheel, the projecting wedges coinciding with the grooves, a catch is released, the expanding band springs open and the tire is ready for running. Creeping is prevented by the grooves and wedges, and any possibility of flying off sideways is prevented by the expanded band. The entire circumference of the wheel being a bearing surface, there is not the danger of stretching common to some types of rim. An Ajax racing rim has been removed and replaced by a new one in 14 3-5 seconds.

MIDGLEY TURNBUCKLE.

The tourist rim consists of a main rim or base member permanently fitted to the wheel, carrying on one side an ordinary clincher or bead. The opposite or outer edge of the base member is provided with a slot or groove around its entire periphery from three-eighths to five-eighths inch deep, according to the size of wheel. In this groove is placed a split metal locking ring which is contracted and expanded by means of projecting tips. On the same edge is a flat steel band turned up on the fixed rim one-eighth of an inch. This turned edge acts as a check against which the removable bead or clincher fits. The outer removable clincher is also fitted with a groove on its inner face, which the locking ring in its expanded position entirely fills, holding the rim rigidly on the wheel. To take out an inner tube is an exceedingly simple matter. A small metal wedge between the two ends of the expanded band is withdrawn and the two tips brought together and held in a contracted position by the clip shown in engraving. There being now nothing to hold it, the outer clincher drops off, and the shoe and inner tube can be slid off the fixed rim. The operation is so simple and requires so little muscular effort that a child could perform it. No nuts, bolts, or other tightening mechanism are employed, nor is any special tool necessary for operation. Lugs or bolts may be used and the ordinary type of valve is employed.

UNIVERSAL RING OF THE MIDGLEY.

In the case of the Fisk, a simple but highly effective principle that has hitherto not been taken advantage of in this connection has been employed. The inflated tire is held on the dismountable rim with the familiar Fisk type of mechanical fastening, which is one of the oldest of its kind on the market. The center

of this dismountable rim has a raised section with sloping sides, one of which engages a corresponding raised edge on the permanent metal rim bolted to the felly. When the rim with its tire is put in place this holds it at the inner side. The felly of the wheel and a split ring with a beveled face at an angle of about 45 degrees corresponding to a similar face on the permanent rim, are pierced at regular intervals with six bolts, fastened so as not to turn or shake loose. When the nuts on the latter are tightened, the ring expands, the two faces sliding on one another, causing it to rise vertically, thus firmly gripping the rim between two substantial metal rings. As it is only necessary to give the nuts a few turns to loosen them, and they never have to be removed, the operation is one requiring but a very short time to complete. In addition to marketing this new type of rim the regulation Fisk detachable type will be continued.

GOODYEAR DETACHABLE TIRE.

The Pennsylvania is the only other true dismountable rim produced in this country, and presents the extreme of simplicity. It is based on a radically different principle than either of the other two just described. The permanent rim attached to the felly of the wheel is made with special recesses or wide slots corresponding to detents or raised portions on the removable rim. The countersunk portions of the permanent rim are tapered in a direction contrary to that in which the wheel runs, so that the strain created by the latter when under way only tends to force the rim and tire on more tightly. In order to prevent lateral play, which might cause the rim to fly off the wheel sidewise, the sides of the detents are engaged by the sides of the recesses, and a further precaution is added in the shape of two substantial set-screws, which constitute the only part of the device requiring the use of a tool of any kind. The rim carrying the already inflated tire is slid on, given a turn backward for an inch or so, to cause the detents to engage, and the two set-screws tightened, completing the operation, the latter being reversed to remove it, and both being possible of accomplishment by an unskilled driver in less than two minutes, including the preliminary work in the shape of raising the car on the jack.

Large Showing of Detachable Tires.

It is to the field of mechanically fastened tires that the American maker has given up a very large portion of his time, and the result is evident in the number of this type of devices now to be found on the market. Every one of these inventions has been the result of extended investigation and experimenting on the part of those responsible for them, and as practically all of them appeared within a very short time of one another, it would be difficult to treat them chronologically. With the exception of the Fisk, which, as already mentioned, uses transverse bolts and was one of the first to make its appearance, there is considerable unanimity of opinion with regard to the basic principle of nearly all these devices, this consisting of the use of one or more loose rings. It is in the method of attaching the latter and making it fast that the greatest difference is to be found.

SECTION OF GOODYEAR SHOWING VALVE FASTENING.

In the Marsh rim, for example, which is put on the market by the Diamond tire interests, this takes the form of a small keypiece. As shown by the section illustrating it, the rim is provided with a threaded extension passing through a hole in the keypiece when the latter is placed in the opening between the ends of the split ring. A nut is tightened on this threaded end and provides against any possibility of the ring jumping out of its channel or being thrown off sidewise, though experience with this rim has shown that it can be run with perfect safety, even though this extra precaution be not taken. As has come to be the case with every maker of detachable tires during the past year or two, the necessity of making the rim so that it could be used with every form of standard tire was apparent at the outset, so that the Marsh rim was given this characteristic at the start. With interchangeable flange rings, the Marsh rim adapts itself to the Dunlop type of tires, or by the use of stay-bolts it makes Diamond regulation clincher tires an entirely convenient and safe equipment.

In the Goodrich quick detachable tire, the construction of the latter is exactly the same as the standard clincher tires made by this firm, and as the dimensions of the rim are standard, the latter will readily accommodate itself to any make of clincher tire manufactured under the G & J patents. The removable ring in this case is provided at its ends with two substantial hooks of almost square section, and a specially shaped slot in the permanent rim on the wheel itself. This is somewhat on the form of an exaggerated letter Z with a long and a short horizontal bar and without any independent connecting line between the two, its outline being well illustrated by the accompanying illustration of the rim and complete wheel. The two hooks of the removable ring are dropped through the long opening of the slot, which is innermost, and then forced, one after the other outward and into the shorter one, which they completely fill. A handy tool is provided for this purpose. The construction is such that when in place the inflation of the tire contributes very largely to its holding power. A dowel pin insures the placing of the ring in the proper place, while the dust cap provided for the valve also acts as a retainer, with the result that the tire does not creep and cannot blow off the rim whether inflated or otherwise.

FIRESTONE, CABLE TYPE.

FIRESTONE, CLINCHER TYPE.

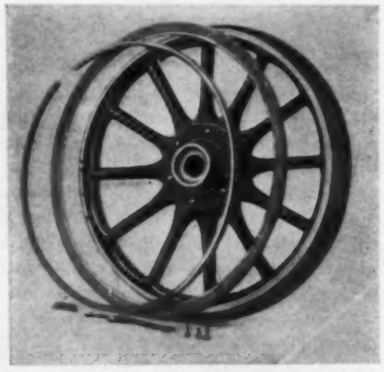
The familiar principle of the turnbuckle has been taken advantage of in the case of the Midgely rims used in connection with the Hartford and Dunlop tires, as well as of those of other makers manufacturing it under license from the patentees, as is the case with Morgan & Wright. The greatest drawback of the turnbuckle in the form in which it is best known is the length of time required to adjust it. This has been overcome by the addition of a device which is at once a multiplying gear and lock. It is constructed on the familiar principle of the worm and spiral, and with the aid of a small crank, which is the only tool necessary, the turnbuckle may be drawn up or loosened in a fraction of the time necessary with the ordinary type. The crank is provided with a square shank fitting a similar hole in the center of the worm, and as the latter and the gear with which it meshes are so cut as to form an irreversible unit, no amount of strain on the

split ring causes this gear to turn the worm when running. This precludes the necessity of any other form of locking devices, as the ring is bound at whatever point the turnbuckle is tightened to. The beads of the tire itself are held between a floating ring on which the tube rests, and the retaining rings.

CROSS SECTION REPUBLIC TIRE.

The Goodyear universal rim is the oldest rim of its kind on the market—that is, one having removable endless flanges. As its name indicates, it is designed to take either the Goodyear detachable tire or any standard type of the G & J clincher. It consists of a rolled steel base permanently attached to the wheel, two flanges or hoops adapted to slide on and off the base easily and a split locking ring. The last named drops into the usual channel in the base and prevents the flanges from being pushed off when the tire is inflated. A spreader plate carrying a thumb nut goes over the valve and, when drawn down, presses the flange against the split portion of the locking ring, so that it cannot be lifted out or removed from the channel by any strain regardless of the direction from which it is exerted nor its severity. No special tools of any kind are required and the operation of removing or replacing a tire is very speedily accomplished.

In the case of the Firestone, the rim is fitted either with flanges for a cable bead tire casing or flanges for the regulation clincher type. In the former case the rim will take the Firestone mechanically fastened tire and in the latter any standard form of clincher. Both the casings and rims are interchangeable with other standard quick detachable rims and casings. The flange and tire are held in place by a simple and ingenious safety locking ring slipping into a channel, creeping being prevented by a spreader attached to the valve stem, a wrench being the only tool necessary to remove or replace the tire. The removal of the locking ring permits the flange and tire to be slipped off the rim. The illustrations show the difference between the cable and clincher bead types.



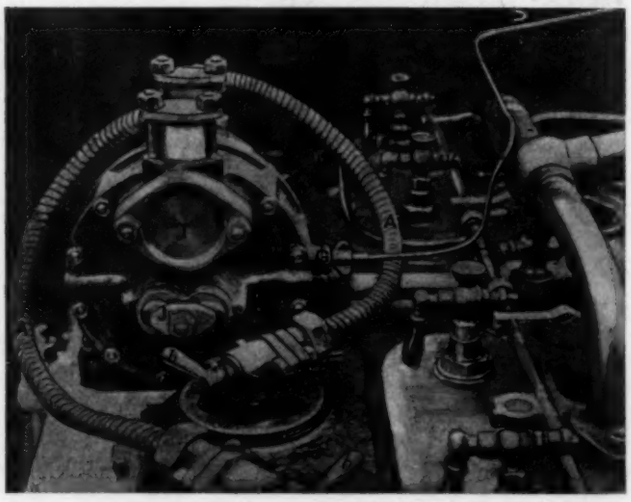
REPUBLIC WHEEL AND RING.

Particular attention has been paid to the matter of excluding dirt and water as well as confining the air to the interior of the tire proper in the evolution of the quick detachable type put on the market by the makers of the Republic tires. So far as the tire itself is concerned, this is somewhat on the lines of a combination of the cable and clincher types, a special feature being found in the addition of a soft rubber strip along both inner edges of the beads, thus effectively protecting the inner tube, the perfect joining of the base preventing pinching of the tube—a most prolific source of so-called punctures. A locking ring secured in place by a retaining nut at the base of the valve constitutes the form of fastening employed, in addition to a keypiece placed opposite the valve and completing the flange ring, which forces the locking ring snugly down into the channel and onto the wheel.

Where other prominent firms are concerned, those who have not brought out special devices of their own, manufacture some of those already on the market under license from the patentees. For instance, the makers of the G & J tires and Morgan & Wright also make the Dunlop and clincher tires for use on the Midgely universal rims, so that every prominent maker of pneumatic tires in the country is making a device of this kind, whether of his own invention or not.

MECHANICAL TIRE INFLATOR PERFECTED.

For three years the experts of the Michelin tire factory at Clermont-Ferrand have been studying the problem of mechanical tire inflation. The result of their labors has just been given to the public in the shape of a machine of very ingenious construction, which, with the engine as motive power, will inflate the largest tire in five minutes. At present the apparatus can only be used for four-cylinder engines, but there is no reason why it



MICHELIN MECHANICAL PNEUMATIC TIRE INFLATOR.

should not be modified for use on a two-cylinder, or even a single-cylinder engine. The Michelin apparatus consists of a compact little pump no larger than the two fists, which may be mounted in any convenient position and connected up to two of the cylinders by a couple of flexible pipes. Valves and taps are placed on these cylinders so as to cut off the supply of gas and allow only pure air to enter, while the other two cylinders are set working. Thus two cylinders are working under normal conditions, and two are compressing air and sending it to the pump. But the pressure of air from the cylinders is not sufficient to inflate a modern tire, and for this reason the pump has to be employed to increase the pressure. The manner of doing this is simple but clever. The air supply to the pump is divided into two parts; one acts on the large end of a piston in the pump, and the small end of this piston compresses the second supply of air to the required degree. The relative areas of the two ends of the piston being as 5 to 1, the air entering the pump at 2 kilograms pressure leaves it at 10 kilograms, this being a sufficient pressure to insure rapid and satisfactory inflation of the tire. From the air outlet shown on the right-hand side of pump a pipe leads up to a terminal on the dashboard, and from this point a connection is made to the tire valve by a rubber piping in the ordinary manner. The apparatus is extremely robust; when once fitted it needs no attention or lubrication, and does not necessitate the use of chain, gears, or belt.

A new bearing metal, composed to a large extent of cadmium and antimony, is being developed in England. The cost of the new alloy, however, is said to be practically prohibitive for general purposes, owing to price of cadmium, its principal component, ranging in the neighborhood of one dollar per pound.

THE HORSE AND THE AUTOMOBILE

By VICTOR LOUGHEED.

ONE of the least understood of the industrial and sociological phases of the automobile development is the relationship borne by the new conveyance to the field of the horse. So far—to the satisfaction of the opponents and the confusion of the advocates of the motor vehicle—it is the evidence of a casual view of the situation that the quantities of automobiles placed upon the market have made no very perceptible inroads upon the mode of transportation they are destined to supplant.

Horses to-day, in most localities of the United States, sell as numerously and for as high prices as ever, while in some localiites they bring even more; in every community in the country, for each automobile enthusiast found spreading the propaganda of the new conveyance there are to be found a thousand hard-headed, sensible people, perfectly willing to be "shown," but who nevertheless are skeptical in regard to both the present importance and the future prospects of the automobile; and there are several manufacturers of horse vehicles whose factories boast an *annual* output numerically equaling the total output of automobiles during the history of the industry in this country!

All of these statements are statements of fact, and as facts are to be reckoned with if the automobile is to achieve the goal for which it is clearly headed—the practical extinction of the horse. Consequently, a statistical study of the situation is the only possible means of reaching a really well-founded opinion as to what are to be the lines along which the industry is most likely to expand. Something of this sort was presented by the writer, in an article captioned, "The Field for the Automobile," which appeared recently in THE AUTOMOBILE—in the issue of November 1, 1906. The figures therein given were taken directly from the Reports of the Eleventh Census—the census figures fortunately being very clear and complete on this interesting subject.

Two-thirds of Horse-drawn Vehicles Made for Pleasure.

By these census reports, it was shown that the annual production of horse vehicles of all kinds in the United States during 1890 was 1,369,254, and in 1900, 1,603,371. Since these decennial reports, supplementary reports have been issued, indicating an annual output now of something slightly over 1,700,000. Incidentally, there is disclosed the decidedly significant fact that fully two-thirds of all the horse vehicles made are distinctively pleasure vehicles, while three-quarters of these—one-half of the total—are specifically *two-passenger* pleasure vehicles. Also, the heavy commercial vehicle, which is accredited by nine men out of ten in the automobile industry with some almost inexpressibly great future, certainly can invoke no horse-vehicle parallel to indicate a grain of reason in this awestruck regard for its future.

Of *"drays and trucks,"* the 1900 census reports state, there were then made 7,417 annually—a little more than one one-thousandth of the complete output. Of *"furniture vans and caravans,"* there were 1,725; of *"coal wagons and carts,"* 3,155; of *"dump wagons and carts,"* 4,098; of *"ice wagons,"* 1,144; of *"log and ore wagons,"* 4,282; of *"public conveyances,"* 2,316; of *"trade wagons,"* 11,788; of *"street sweepers, sprinklers, etc.,"* 491; and of *"government and municipal wagons,"* 1,108; besides perhaps another thousand in miscellaneous classes. The total of these is 31,107—.019 per cent. of the total. *"Farm wagons and carts,"* to the number of 405,513, and *"business wagons,"* to the extent of 125,726—the two totalling nearly one-third of the total output—at first sight make a more respectable showing, until analysis of their subclasses discover that nine-tenths of these are the lighter vehicles, not likely to be competed with from automobile standpoints except by the use of special bodies on accepted pleasure types of chassis.

Of course, nothing in the foregoing denies a very great field for the commercial automobile, but this is true, not because of its comparative importance, but because a demand for even 50,000 or 60,000 commercial vehicles a year is an ample basis upon which to found a great and important industry

But, in the writer's opinion at any rate—and all the evidence to be had bolsters up this opinion—the tremendous field for the road vehicle of the future is the truly tremendous field filled by the road vehicle of the present.

And the average road vehicle of the present is not a multi-millionaire's "locomotive of the highroad," nor even a $500 runabout or a $1,000 touring car; it is a $95 two-passenger buggy, drawn by a horse worth perhaps $100, and equipped with accessories, harness, etc., probably totalling not over $55 more. Consequently, the complete road unit most in demand to-day is that for which the purchaser is willing and able to pay, and is in the habit of paying, about $250.

Facts That Are Interesting and Very Significant.

With an annual production of 1,700,000 horse vehicles, of which fully 1,000,000 are pleasure vehicles, is it not reasonable to presume that at least as many as 40,000 of these—only 4 per cent.—are of the high-grade, expensive, luxurious types, naturally associated with silver-mounted harness, footmen and coachmen, flunkeys, and other of the money-absorbing appurtenances of wealth? And is it not equally safe to assume that these vehicles, fully equipped for the road—with horses and with harness—will cost on an average fully $1,500?

Yet, it is an absolute fact that the automobile industry in this country, rapidly as it has developed, has only now reached an annual production of about 40,000 vehicles of all classes, retailing for an average of about $1,500 each—in condition to run upon the road.

What more natural, then, that in these days of its sturdy infancy, the automobile should compete first with that phase of horse use wherewith competition is the easiest, requirements the simplest, money the freest, prices the highest, and profits the greatest? What more natural than that the hazards of catering to a low-price quantity demand, involving the risks of heavy investments for quantity production and the assurance of small profits, should be temporarily neglected in the rush to till the field of greater immediate promise?

Viewed in this way, the situation is perfectly logical and readily understandable. It obviously is a necessary condition in the economic evolution of an engineering industry. Through catering to the demand that has possessed the "price," and therefore could afford to experiment, the experimental period has been passed with a painlessness and general satisfaction that could not have developed in any other circumstances.

To-day, as the result, any concern with average good designers and large manufacturing and selling resources, could conservatively embark in the construction of 100,000, or even 500,000 low-priced automobiles, all alike, with every assurance that all would sell quickly and give the buyers their full money's worth of service for years to come.

The efficiencies of quantity production, applied in connection with the best that is known of simple and reliable designs, would insure a consistent quality and a price, which alone would constitute most of the selling argument necessary, thus saving much of the tax on the marketing.

The Horse Is Distinctively Losing Ground.

In the meantime, the horse reigns only in the fields in which his supremacy has not been disputed. This may be startling, but it certainly is true. Let any one consider for a moment, and it must be admitted that in those of his activities that involve catering to luxury and the long purse he is distinctly losing ground. He has lost ground. He is no longer used by the ultra-fashionable and the pleasure-loving to the extent that he once was. The riding and driving clubs all over the country are losing membership, and even closing their clubhouse doors, and livery stables are losing money or being transformed into garages.

The remaining stronghold of the horse is guarded solely by low prices.

The horse-vehicle production for 1906 was only 1,700,000, which indicates that the 1,877,517 required by 1910, if the past rate of growth is to be maintained, is going to fall about 140,000 short. Significant fact!

This is almost exactly the number of automobiles likely to be in use at that time, if present-day figures extend as the logic of the statistician argues they will.

In other words, for every automobile placed in commission in one place, a horse vehicle has gone out of commission there or in some other place. And the law continues to apply, inexorably. The horse has made and is making no stand whatever against the rising tide of mechanical propulsion. He persists in use, not because of his merits nor because of the difficulty of winning the victory over him, but because it takes time to organize to assail him. It is altogether a matter of time, not of difficulty. His strength is a sheer numerical strength.

The horse simply has not been assailed in his most numerous field of usefulness by the automobile, and his most numerous field of usefulness is a matter of something like a million a year of two-passenger, $250 conveyances!

The average horse user, in other words, is of the people. In proportion as he is numerous, he is individually weak financially. The automobile user, on the other hand, though less numerous, has been of a higher financial strata. Wisely, manufacturers have catered to him. But now the industry has developed and the situation is changing. Perhaps the price of $250 need not even include a full running equipment. The cost of tires, for instance, might be left out of consideration altogether, with the advantage of eliminating the present unsatisfactory practice of placing cheap tires, of too-small sizes, on cheap cars. Tires being a considerable running expense, there is no more real reason for including them in the list price of an exceedingly low-priced car than there could be for selling the same car with the gasoline and oil tanks filled, or a horse with enough shoes and hay to enable him to travel 10,000 miles—the approximate life of a tire.

It is to the credit of, rather than a reflection upon the present status of the automobile industry that the day of the low-priced car is dawning. When the masses, as well as the classes, can possess automobiles, the number of sales will more than compensate for any possible reduction in the profits upon sales. And, as has been said before, will not the low-priced car, by its widespread use alone, do more in months for the good-roads and fair-legislation propagandas than has been done in years by all the other interests enlisted behind them?

ADVANCE OF THE MOTOR 'BUS IN THE GREAT CITIES

AS copy providers for the British daily press the London automobile 'buses are unique. Columns upon columns have been written on their side slipping proclivities, their noise, their smoky exhausts, dangers of fire, damage to property through vibration, etc. Despite all the criticism, the 'buses have continued to grow in numbers at the expense of the horse-drawn vehicle. If proof were needed of their success it is to be had in the reports of the London transportation companies. Even the Electric Underground Railway Company, with the best equipped plant in the metropolis, quick trains and low fares, has to announce a large diminution in its takings as the result of the competition of auto 'buses. The majority of the London 'buses are gasoline driven, a small number are British-built steamers, and the latest addition is the electric 'bus shown in our illustration. A uniform type of body has been adopted, as shown in the engraving, with transverse seats on the top. More than half the gasoline 'buses are of foreign origin, De Dion-Bouton, of Paris, having supplied a large number, other big furnishers being Mors and Lacoste & Batmann. Germany has succeeded in capturing a large amount of the London 'bus trade. One of the De Dion 'buses, similar in every respect to the London article, is daily running on Fifth avenue, New York, as an experiment. All Paris "buses, about fifty in number, are of the Eugène Brillée type, driven by 40-horsepower gasoline motors. The Serpollet-Darracq combination is seeking to take over the entire Paris 'bus service when the present company's lease expires, and provide a complete service of steam vehicles.

ONE OF THE FEW ELECTRIC 'BUSES NOW BEING OPERATED IN THE FASHIONABLE WEST END OF LONDON.

LETTERS INTERESTING AND INSTRUCTIVE

A Novel Automobile Wheel.

Editor THE AUTOMOBILE:

[570.]—I would like to ask a question in regard to the wheels in present use on all automobiles, that is, whether the standard artillery wheel is giving perfect satisfaction at present, or whether it could be improved on or not. My reason for asking is that I have a model wheel, which I am having patented, and which I think is an improvement over other wheels, as it is a device whereby we get a complete staggered-spoke wheel and employ no bolts whatever, while we can use from ten to thirty spokes in each wheel if desired. This, I think, would make a much more substantial wheel than the regular artillery. And another feature is that it will not require much machine work in its construction—only to cut a thread on both sides of the hub, also inside of a retaining ring that screws to the hub to hold the spokes in place. When it is complete, it makes a decidedly rigid and stout wheel. In case of an accident, one can remove all spokes from one side and replace them in a very short time without interfering with the form and shape of the wheel, and without taking it all apart. Now I would like to have your opinion of such a wheel, and whether you think there would be a market for same, before I go ahead with it. If you can enlighten me on the subject I would be obliged. WM. VAN ETTEN.

Richmond, Va.

Without seeing the actual wheel itself, it is difficult to say with certainty whether or not you have something capable of being marketed at a profit. Even then, so much depends upon the strength of the backing you have, and upon the business ability that may be at your command, that we could not hope to furnish an offhand opinion likely to be worth anything to you. There is no doubt but what many now popular automobile wheels might be readily supplanted by something altogether superior, and it is a fact that a lot of people believe the staggered-spoke wheel is better than the artillery wheel. It is usually more complicated, however, and harder to repair, though it has been more used on horse vehicles than the artillery wheel. Personally, we do not particularly fancy the great number of spokes you suggest, though this is only a detail, undoubtedly capable of modification. In the small sizes commonly used for automobile wheels, the unsupported portions of the spoke will hardly average more than seven inches—certainly short enough to stand up regardless of the construction employed. We would suggest your reading up on wheel patents before going ahead, since there has been an immense number of devices brought out along the line you mention, and there might be something that would conflict.

A Hasty Conclusion.

Editor THE AUTOMOBILE:

[571.]—In your issue of January 24, on the pages devoted to correspondents' letters, you take Mr. Clarence Jones, Columbia, S. C., to task for his statements in regard to current consumption in (letters 543). You state that he neglects to consider that an engine running at 1,500 revolutions to the minute makes contact twice as often as one running at 750. This is certainly true, but it is also just as certainly true that each contact is exactly half as long, therefore the total time of contact is the same in either case. In one case, at 750 revolutions, we have a certain number of contacts of a certain duration every second, and at 1,500 we have twice the number of contacts of just half the duration, so there would be the same battery consumption in either case. It seems to me these considerations would convince any one that battery consumption is absolutely independent of motor speed, except that it might be influenced by the lag of coils and timer. THOMAS C. FORBES.

Los Angeles, Cal.

We think that you rather miss the point of our contention in assuming that battery consumption is determined solely or chiefly by the duration of contact. You are correct, of course, in what you point out—that at double the speed of rotation the duration of contact is halved—but it seems to be generally believed that there is a surge of the current upon the contact being made which has much more to do with battery consumption than the mere duration, which is very short, even at the longest.

An Unusual Type of Accident.

Editor THE AUTOMOBILE:

[572.]—I have just read an account of an automobile accident in which a man was killed by the explosion of a flywheel, due to its being run at too high a speed. Will you please tell me exactly what can cause such an accident, whether it is one that can occur to any automobile if the engine is run too fast, or whether it is due to some defect in the wheel, such as probably would not exist in some other wheel on the same make of car. Also, is it the centrifugal force or some other effect that causes the breakage? I understand that the flywheel of any large stationary engine is almost certain to break if the engine is speeded way above its normal speed. Is this true of automobile engines also, and, if not, why not? GEORGE ISAACS.

Durham, N. C.

The laws of mechanics are the same in the bottom of the sea or on the top of a mountain, and what is true of the flywheel of a stationary engine may also be true of the flywheel of an automobile. The flywheel of any machine must be designed to run at a certain maximum speed—either the maximum at which it is possible for the machine to run or a maximum determined by some safety-controlling device. This maximum involves a certain peripheral velocity, which, with a given weight involved, results in a given centrifugal force. Strength sufficient to resist this force must be provided in the design, and if it is not provided—because of faulty design, flaws or imperfections in the material, or a wrong conception of the maximum speed—the flywheel is highly dangerous, being likely to break with the result that fragments will fly around like projectiles. Another factor that sometimes has a part in flywheel breakage is gyroscopic action, coming into play when the bearings are loose or the center of gravity is not at the center of rotation. Of course, this effect is more likely to break crankshafts than flywheels, unless the latter are unduly weak in the spokes or web.

Causes for the Heating of Tires.

Editor THE AUTOMOBILE:

[573.]—Can you tell me whether the heating of automobile tires and consequent separation of the plies of the outer shoe and destruction of the inner tube is caused by the frictional contact of the tire with ground, or the internal friction of the air confined in the tube; or do both contribute as causes of the heating and in what proportion?

It is claimed that the larger portion of the heat is generated by the velocity with which the air is forced round the inner tube, the air being circulated in the inner tube in a direction opposite to that in which the wheel is revolving, by the contact of the tread of the tire with the ground. The weight of the car flattens the tire from a round to an oblong or elliptical form and continually forces or pumps the air in the tube in the direction opposite to that of the wheel's travel, the continual flattening of the tire when in motion also causing a "pounding" of the air in the inner tube at a point where the shape changes or flattens when in contact with the ground, superheating and expanding the air.

As an illustration, a 34-inch tire on a car running at the rate of 40 miles an hour would make approximately 380 revolutions per minute. The circumference of the tire being 106.76 inches would make the tire rim travel 3,380.75 feet per minute and the air in the tube circulating in the opposite direction would have a frictional travel of 6,761.50 feet per minute approximately, or about 1¼ miles per minute, and the propulsion of the air through the inner tube at this tremendous speed would heat and expand it to such a degree that the tube would burst. I claim that 75 per cent. of what are called punctures are really ruptures of the tire caused by the expansion of the air in the inner tube. I would be very glad to hear from anyone who has given any thought or study to this phase of the heating of the inner tube of automobile tires.

Buffalo, N. Y. JAMES F. PRESTON.

While we have been unable to find any definite data on the subject, we think it is evident that the disintegration of a pneumatic tire is due both to the friction of the shoe against the road as well as the friction of the tube and inside of the shoe, and that by far the greater part of it arises from the constant bending of the outer shoe at its sides. In fact, the latter would

appear to be almost wholly responsible for the separation of the various plies of the shoe which will usually be found to start at the point which is subjected to the greatest amount of bending. The rapidity with which a tire disintegrates depends upon the care given it more than anything else, all other things being equal. The destructiveness of this bending is the chief reason for the stress laid upon proper inflation by the tire maker.

Assuming your figures to be correct in the instance cited, the conclusion that it is impossible to run a car with pneumatic tires at a greater speed than 40 miles per hour would appear to be inevitable. As you are probably aware, speeds in excess of 100 miles per hour have been attained, and though the tires have become very hot they have neither melted nor suddenly disintegrated in any other way by reason of it. The error in your calculations would seem to arise from your assumption that the air only travels in the inner tube in one direction as the result of expansion, and that direction must necessarily be the reverse of that in which the wheel is turning. If we assume, for instance, that, with the revolution of the wheel, as each point comes round and makes contact with the ground, its meeting is similar to a blow, of which the expansion is the result, it will be evident that the air must travel in opposite directions away from the point of contact. Owing to the forward travel of the wheel and the manner in which it meets obstructions, it is probable that this is not equally divided vertically, but that a larger fraction of it is toward the rear from the point of meeting, and, consequently, in the same direction as the wheel is traveling. Expansion is always along the line of least resistance, and as there is nothing to prevent the air in the tire traveling one way round it to the exclusion of the other, it is evident that it takes both ways round, and, meeting half round, the force of each stream is counteracted by the other, so that there is no constant stream of air circling the tire at a tremendous velocity such as you have figured out. Take a piece of ordinary garden hose long enough to make the equivalent of a tire, and bend it in circular form; hold it upright and strike it a blow with a mallet at the point it touches the ground, and the conditions under which a tire travels will, in a measure, be simulated. If there be any means of measuring the force of the air issuing from each open end of the hose as a result of the blow it will undoubtedly be found to be approximately equal in each case. There is little doubt but that a very large proportion of the alleged punctures are "ruptures" of the inner tube, but if the truth were told they would be called "pinches" due to carelessness in putting the tire on. If there are any of our readers who have had any experience of the nature in question, and can amplify the foregoing, we should be pleased to hear from them.

The Balancing of Engines.

Editor THE AUTOMOBILE:

[574.]—I have never fully understood the balancing of different types of engines, and would very much appreciate an explanation in your columns "Letters Interesting and Instructive." I can understand that a two-cylinder, opposed motor is in balance. I am told that a vertical two-cylinder motor with cranks 180° apart is in balance as to its reciprocating parts, but that there is some sort of accelerating force not compensated for. This is not clear to me. Does a four-cylinder vertical engine overcome the difficulty, if there is one? What forces in a vertical, single-cylinder engine have to be counterweighted? Does the balancing hold good for all speeds? If not, why not? A SUBSCRIBER.

New York City.

There are a good many factors to consider in the balancing of motors, by which it is sought to avoid undue vibration. The most obvious factors to be considered are, of course, the balancing of impulses and of moving parts. All that can be done with respect to the former is to cause them to occur at definite and invariable intervals during the crankshaft rotation. The balancing of moving parts is less simple. A horizontal-opposed motor is in very good mechanical balance because the pistons approach each other and recede at rates that are at all times the same for both pistons. With a vertical motor the movement of one piston down does not balance that of another piston up, because of the angularity of the connecting rods. Because of this angularity, when the throws on the crankshaft are horizontal, both pistons are materially below the center of the stroke, as you will realize if you conceive one of the pistons held in place and the bottom of its connecting rod released from the crankpin and swung into a vertical position, in which position it will reach materially below the center of the crank circle. And, since in turning from the horizontal position to a vertical position of the crank throws, the rising piston must travel more than half a stroke and the falling piston less than half a stroke, it follows that they move at differing speeds, and thus do not exactly balance each other. Another condition that arises with a vertical, multicylinder engine is due to the presence of a rising piston at one end of the range of cylinders with a falling piston at the other, this action tending to produce a rocking motion from end to end of the motor. A counterweight on a single-cylinder motor is designed to balance the weight of the connecting rod opposite it, besides partially balancing the piston. Such balancing does not hold good for all speeds because the balancing effect varies at different points in the revolution, with the result that the motor cannot run evenly, besides which the variations in torque are not compensated for.

A Case of Leaky Valves and Defective Coil.

Editor THE AUTOMOBILE:

[575.]—I have read with considerable interest communication 542 which appeared recently in "The Automobile," under the head of "Letters Interesting and Instructive." In view of the fact that I have experienced very similar difficulties with my four-cylinder 22-horsepower European automobile, I might add, however, that one of the difficulties I have experienced is the failure of the engine to occasionally respond to the throttle when it is opened, whereas, one would fully expect the engine to fairly roar when the throttle was opened wide, particularly when running on the intermediate gear.

Quite recently I noticed a coating of oil or fluid on the top of the last cylinder and on close investigation I found that this oil was oozing through the cap which screws into the head of the cylinder, but whether or not this defect would have the same effect as the leaky valve described by you, I am unable to say. Can you give me any information on this point? I would also like your explanation of the following:

As a result of my search for these difficulties, I quite recently learned of a short circuit in my coil box. The ignition on my car is by means of a magneto and a set of accumulators, and in the coil there is provision for a short circuit between a lever and one of the treminals for the purpose of preventing the coil burning out. It is at this particular point that the short circuit occurs.

Toronto, Ont. OSLER WADE.

Without more definite particulars or a personal inspection of the car, it seems difficult to ascribe the condition such as outlined by our correspondent in letter 542 to be due to anything but poorly fitting valves, and if the symptoms of your trouble are identical with those there outlined, we should recommend the same remedy. Occasional failure to respond to the throttle might be ascribed to a sticking auxiliary air valve or similar temporary derangement of the carbureter that would radically alter the character of the mixture. It does not seem possible that the fluid you describe as oozing from the cylinder cap can be oil; it is water from the circulating system, as the cap in question closes the water-jacket, this opening being left in order to permit of access to the walls of the water-jacket, so that it may be cleaned of sand and the like after casting. Such a slight leak as you describe can have no possible effect on the running of the engine. Remove the cap, clean the threads both of the cap and cylinder, and smear them well with litharge, then screw up again. This will undoubtedly cure the leak, and perhaps merely a half a turn or so may prove just as effective without removing the cap at all. Try tightening the cap a bit, and if the leak still persists, give it the above treatment.

Regarding the short circuit you speak of, we judge from your description that the coil-maker has provided a sort of over-load relief. In other words, there is a gap in the secondary circuit presenting a greater resistance than that of the spark

plug, but not too great for the coil to safely bridge. Should the spark plug points be too far apart, or for any other reason a resistance greater than that ordinarily presented by the plug be interposed, as by the falling free of one of the plug cables, the spark will immediately bridge this relief gap and the coil will not damage. This is because of the fact that if the resistance between the two exterior terminals of the secondary winding is greatly in excess of the capacity of the coil to bridge, the current is apt to break down the insulation by jumping from layer to layer, usually termed "burning out." The fact that there is an occasional short circuit at the point you mention seems to be indicative of dirty plugs, points too far apart, or some similar cause that has raised the resistance of the gap considerably above that for which the coil was designed, and the safety device has come into play. Clean or adjust the plugs, or replace them with new ones, and note the effect by running the engine and watching for a short circuit at the point in question. If it still continues, inspect the wiring for breaks. It is possible that something has struck the lever you mention, causing it to come nearer to the terminal in question, so that the safety gap is now much less than it was as originally designed. Spark-plug points are seldom set more than 1-16 inch apart, and usually less. Probably 3-8 or 1-2 inch would be about correct for the safety gap, as this would represent a vastly greater resistance than that of the plugs, but would still be within the safe capacity of the coil. The necessity for safeguarding the coil as well as the why and wherefore of it appear to constitute something that even well-versed autoists are not conversant with in very many instances. We should like to hear the outcome of your investigation.

Some Piston Ring Considerations.

Editor THE AUTOMOBILE:

[576.]—What is the theoretically-perfect form for an efficient piston ring, and can it be realized practically? If in your answer you can give something bearing on the comparative merits of the different constructions most used, I am sure that there are others of your readers besides myself who will appreciate it.

Jamestown, N. Y. MILTON HOWELL.

A theoretically perfect piston ring would bear evenly and with the same pressure against the cylinder wall all the way around. Such a ring is impossible to make practically, though excellent approximations are secured by several methods. Of the principal types of rings in common use, it can be safely said that any of these, when well made, are thoroughly serviceable. What is probably the commonest type, the eccentric ring, theoretically should taper to an infinite thinness at the point where it is split, as only by such design could it be possible to secure even springing all around. Practically, of course, considerable thickness must be left, even at the thinnest point, to fill the groove and provide the necessary strength. By hammering the inside of the ring—a common practice—the springiness is reduced and increased at such points as require it. Rings made very light and small, and held in contact with the piston wall by supplementary springs of one sort or another placed behind them, have often proved capable of giving better service than any other kind.

HOW A STANLEY AGENT FEELS ABOUT IT.

Editor THE AUTOMOBILE:

[577.]—I have noted several editorials and remarks in your magazine to the effect that "freak sprinters" are doomed and that the failure of the whole Ormond meet this year, was a failure largely owing to the entrance of the Stanley cars, which would seem to be rather a good ad. for these cars if the 60, 90, 120 and 200-horsepower cars were afraid to enter in competition with the 20-horsepower Stanley cars.

Granting that the Stanley racer was to some extent a freak, if you strip off the elongated aluminum cover, and put on an ordinary body, it does not come as near being a freak as most of the freak gasoline cars entered, which are absolutely no use except on a Vanderbilt cup course or on a stretch of beach like Ormond, and I'll venture to say that the so-called Stanley freak could get out on an ordinary road and give some of those 120-horsepower racing freaks cards and spades and beat them out.

I was at Ormond two years ago when Louis Ross cleaned out about everything there, and if there is anything that comes any nearer being a freak than Mr. Bowden's eight-cylinder "Flying Dutchman," I'd like to see it, and I noted that many of those large gasoline racing freaks had about all they wanted to do to get up the hill off the beach, they were geared so high.

Then, too, last season, the 200-horsepower Darracq was a racing freak purely and simply, and could hardly have stood on a trip over an average country road.. I saw Mr. Croker's car after it was wrecked, and from the pictures I have seen of the Stanley racer I notice that Croker's car was more of a wreck than the Stanley, notwithstanding the fact that some of the papers have said it was so light that it all went to pieces.

When you are belittling steam and the Stanley cars, and giving reports of the races, why do you not give the reasons when a Stanley was compelled to withdraw; but instead, you say "They seemed to lose power and pulled out," when you know very well or could have known that in one instance the check to the gasoline pressure pump got stuck, consequently the fire would not give them the required steam, and when a fully equipped touring car is driven a mile in something like 40 or 45 seconds, I think it was, you hardly notice it, but still continue to stick to it that these cars are of no use but to sprint. How about the 15-mile race last year, when a Model H car beat everything and made it in 13:42 2-5? How about the five miles which Stanley made in 2:47 1-5? Two years ago Mr. Ross said the only mistake he made was that he did not enter in the 50 and 100-mile race. He could have stopped and taken water and then won out. This year they had hard luck on those races, but the cars entered were in no sense freaks, and I contend that the most of the large gasoline cars with the seat on the rear axle and geared only for a level are absolutely useless except on a race track, and are in a way as much freaks as the Stanley racer.

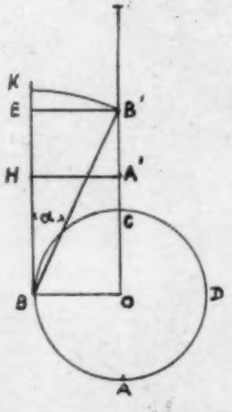
Personally I think freak racing either with steam or gasoline cars amounts to little, but if you are going to bar out a steam freak, be square and bar out gasoline freaks as well.

E. A. BRODIE,
Burlington, Vt. Agent for Stanley Car.

ANOTHER CONTRADICTION FOR MR. BOOREAM.

Editor THE AUTOMOBILE:

[578.]—Referring to letters regarding crankcase breathers in the issues of "The Automobile" of December 13 and January 17, I herewith submit a trigonometrical proof that you were right and J. F. Booream was wrong, as to the angularity of connecting rod affecting the volume contained in crankcase, etc. As an actual fact the volume would vary over 78 cubic inches in a four-cylinder engine 5 x 6 inches, with 10-inch connecting rods. For instance, let ABCD be the circle described by crank;



and OB equals r equals length of crank;

and AA′ equals BB′ equals CC′ equals l equals length of connecting rod;

and A & A′, B & B′ and C & C′ represent respectively the positions of crank and piston wrist pin at bottom of stroke, after crank has revolved 90 and at top of stroke.

Let a equal the angle piston rod makes with vertical, when crank has revolved through first 90°.

Describe arc B′K through B′ with B as center.

Draw horizontal lines E B′ and H A′ through B′ and A′.

Then AO equals HK equals r equa vertical distance traveled by crank in revolving through first 90°.

And A′B′ equals distance traveled by piston during same period.

But A′B′ equals HK minus EK.

And EK equals l versine a.

Therefore A′B′ equals r minus l versine a.

Now as long as l and r bear some finite relation to one another, "l versine o(" must have some finite value;

And, as total distance traveled by piston from bottom to top of stroke is equal to 2r:—

It is plain that the distance traveled by piston while crank is revolving through the second 90° is greater than the distance traveled while crank is revolving through first 90°. The difference is equal to 21 versine a.

To put the above in other words: In a four-cylinder engine, the displacement due to the downward moving pistons is not at all times compensated for by the upward moving pistons.

New York City. W. C. STEARNS.

AUTO CABS IN THE GREAT WORLD CENTERS

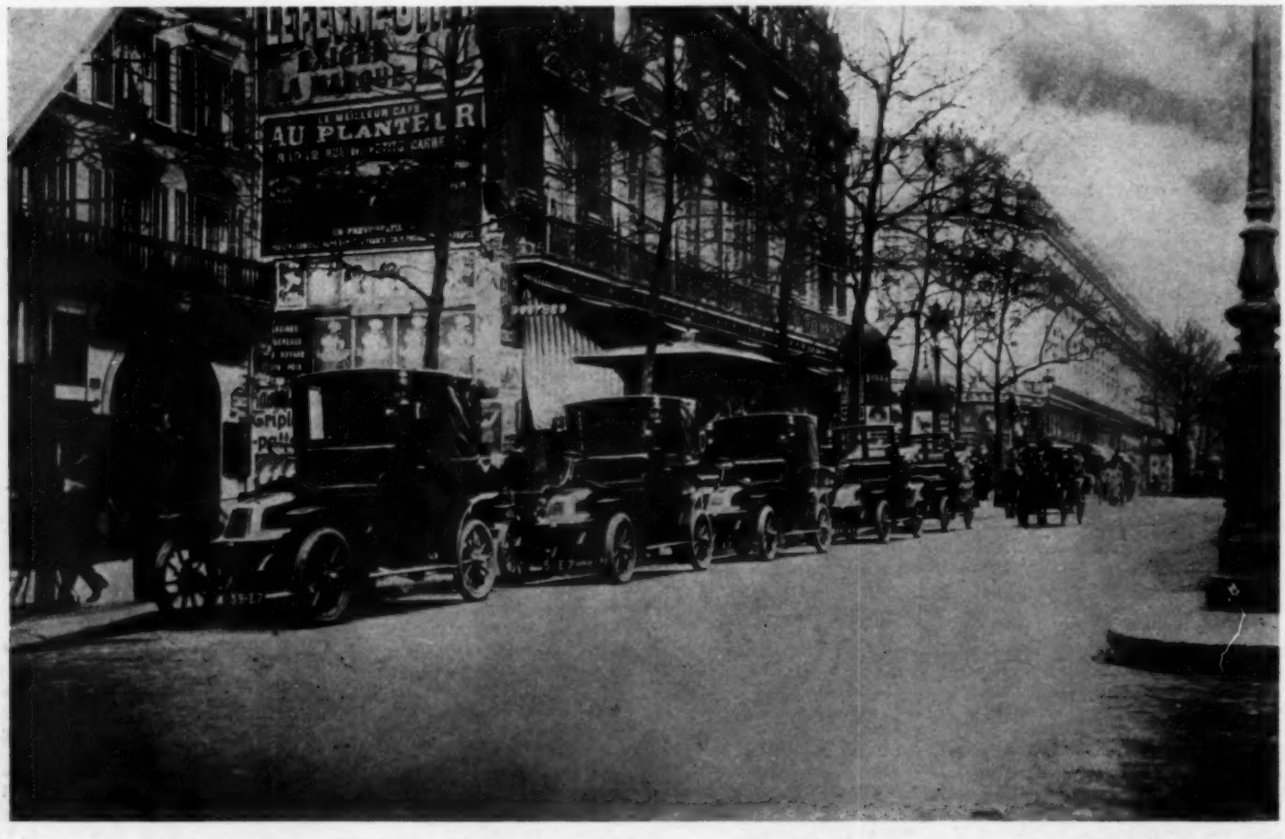
By W. F. BRADLEY

NEW YORK, Paris, London, Berlin, all have their transportation problem, and have all in a greater or less degree called upon the automobile for a solution. Geographical and topographical conditions as well as local custom vary the problem in every center, and call for correspondingly different treatment. New York is compact, dense, bustling; its system of elevated, surface and subway cars—the most complete in the world—is perfectly suited for its peculiar conditions. London is vast and varied, has a tremendous area open to similar treatment to that of New York, and a center so dense that surface cars are an impossibility, hence a special treatment of the transportation problem. Paris is compact, easy-going, combines pleasure and business in about equal proportions, and has a well-developed esthetic trait.

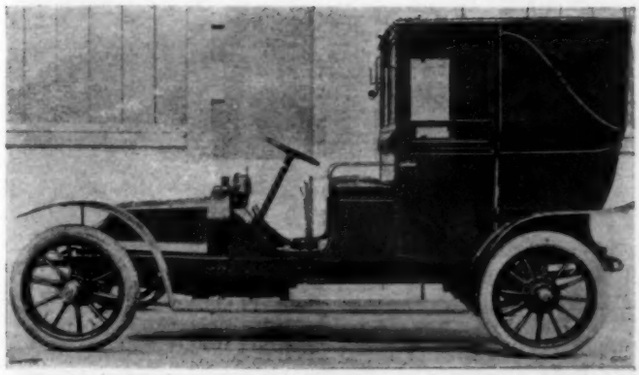
The Origin of Motor Cabs in Paris.

At the present time Paris and London make an almost equal though widely differing use of the automobile for public transportation service. Four years ago the only public automobiles in Paris were a score or so of gasoline cars, which hung about the national opera house, and a small number of electric cabs somewhat similar to those at present in use in New York. The gasoline cars were ancient models, frequently owned by their drivers, had no definite scale of charges, and were mostly patronized by visitors to the city. Some of the drivers were proud of the antiquity of their machines, and if you were inclined to listen would tell a wonderful story of Daimler's personal connection with the vehicle. The electrics were heavy, slow and never found favor with the public.

Paris has always been well supplied with horse cabs, light vehicles, open in summer, closed in winter, pulled by a lean horse and driven by a fat cabby, for thirty-five cents, including tip, you could travel from one end of the city to the other. They were so cheap, so handy, that everybody used them, frequently in preference to omnibuses and subway trains. The taximeter system was introduced, fares being made proportionate to distance traveled, but the scale still being kept very low. After a brief dispute the scheme was a huge success, the public and drivers alike asking for its extension. The motor cabs adopted it and increased a little in popularity. About eighteen months ago a company placed on the streets of Paris a number of Renault automobile taximeter cabs. From the outset they were an unqualified success. From 100 their numbers were increased within a few weeks to 250, and in a few months' time they will number about 600. Alive to the possibilities of this branch of automobiling a dozen or more firms produced automobile cabs and offered them to the cab companies and other corporations. The offers were not all accepted, many of the imitators being inferior to the original article. At the present time, however, in addition to the Renault cabs there are a small number of Panhard, Chenard & Walcker, Unic, and Bayard-Clement machines specially built for this service. In addition a number of schemes are afoot for the increase of automobile cabs, and several of the most important French factories are busy on chassis for cab service. Darracq is at present perfecting a cab, to be turned out in huge series; Panhard is doing the same, and the Bayard-Clement people have just produced a special chassis which will be extensively adopted in more cities than Paris. Judging from the number of cabs now on order, and the inquiries afoot, the five or six big companies operating horse cabs will in two years time have entirely transformed their service and the public horse-drawn cab will no longer exist. On a moderate estimate, Paris alone will have



RENAULT TAXIMETER AUTO CABS IN FRONT OF THE HOTEL SCRIBE ON THE BOULEVARD DES CAPUCINES, PARIS.



NEW BAYARD-CLEMENT CAB CREATION.

eight or nine hundred motor cabs at the end of the present year. The Renault, which inaugurated this change, has a two-cylinder engine in one casting, 75 by 100 bore and stroke, mechanical valves, automatic carbureter, ignition by magneto and sparking plugs, thermo-syphon water cooling, and is rated at 8 horsepower. Simplicity and accessibility are two of the most valuable features of this car. The Renault method of placing the radiator behind the engine has special advantages for cab work. There are no control levers on the steering wheel, the speed of the engine being regulated by a small controller on the dashboard, from three to twenty miles an hour being thus obtained. The pedals are but two in number, one operating the clutch and brakes, the other being an accelerator. There are three speeds ahead and reverse, transmission is of sliding gear type, and drive through propeller shaft and rear live axle, as in all Renault cars. The dimensions of the chassis are special; the rear width is 35 inches, the front width 25 inches, the track 54 inches. This gives an enormous steering angle, and the car can be turned round in a 23-foot street without the use of reverse gear. A landaulet body is carried, with ample room for two people on the rear street, and place for two more on a folding seat. In a moment the cab can be transformed from a completely closed to an open vehicle with glass front. This type has been found the most suitable and has been adopted by all the companies.

Bayard-Clément Produced an Excellent Model.

One of the most interesting of the Paris cabs is one just produced by the Bayard-Clement Company. The Compagnie Générale des Petites Voitures à Paris, the largest and oldest of the Paris cab companies, asked for a chassis to replace their horse vehicles —cheap, simple, easily dismountable, and impossible to put out of commission even by unskilled horse-cab drivers. It was a difficult bill to fill, but the company filled it. The chassis has a four-cylinder engine, 75 bore by 90 stroke, giving 14 horsepower at 1,200 revolutions, the four cylinders, gearbox and upper part of crankcase being a single casting. The entire block, motor, clutch, gear box and pedals, is attached to the chassis by three-point suspension.

The lower part of the crank case remains permanently attached to the frame, forming a huge oil tank. By withdrawing six bolts the entire motor, together with the crank shaft and the oil pump, can be dismounted. If repairs are necessary, the chassis can be relieved of its motor in half an hour. Thirty minutes more and another engine can be put in its place, for no adjustment is necessary on the chassis, and there is no delicate alignment of crank shaft and gear box. To obtain the maximum of accessibility the radiator has been placed behind the engine and against the dashboard, as in Renault machines. Water circulation is by thermo-syphon; the water tank forms a frame around the radiator, and a draught of air is assured by a large fan. Ignition is by Lacoste magneto, the carbureter is automatic and has its air inlet completely surrounded by the exhaust; lubrication is of force-feed type, regulated by a small lever on dashboard; clutch is leather-faced cone type, with a special arrangement allowing the spring to be quickly changed; transmission is through sliding gear, giving three speeds ahead and reverse, with shaft drive. A remarkable feature is that the bevel gear, differential and rear axle housing is a special one-piece stamping. Another new feature is that the driver is seated at the left-hand side, the brake and change speed levers being in the center. The body work is similar to the standard type in use in Paris, a speaking tube communicates with the driver, and of course the taximeter is fitted. The Darracq cab is now undergoing tests, and particulars are not available for publication. It has a single cylinder engine, 90 by 120 bore and stroke, developing 8 horsepower, and shaft drive, The Panhard cab is a three cylinder of about the same horsepower; the Chenard & Walcker, a number of which have been bought by Paris cab companies, is a 15-horsepower four-cylinder vehicle.

Motor Cab Fares Are Not High.

In fixing a scale of charges for the automobile taximeter cabs account had to be taken of the low scale in vogue for horse-drawn vehicles, the minimum fare for which is 15 cents for any distance up to 1,300 yards. The autmobile cab fare for two people is 15 cents for 984 yards. A one-mile journey would cost 20 cents, for after the first 984 yards the rate of travel is but two cents per 328 yards. No wonder with such low rates, quick travel, comfortable vehicles, a mechanical instrument for registering the exact fare, and precluding all possibility of dispute with the driver, that the cabs should have been a success. The drivers are paid a fixed daily wage, and in addition receive a certain percentage of the takings above a minimum amount. Each man buys his own gasoline, an equitable allowance being made off the daily takings for this purpose. The allowance has been arrived at, after very exhaustive tests on various kinds of city runs. By careful driving a small sum can always be gained on the fuel allowance.

London has devoted all its attention to the development of the motor omnibus, and has been so active in this direction that there are now about one thousand 'buses in service. London traffic is too dense to allow street surface cars in any but the suburban districts, and the horse-drawn 'bus remained the only surface communication until it was ousted by its gasoline rival. Automobile cabs in London are rare. They, as well as the horse-drawn vehicles, are operated on a system of distance fares, as in New York. If strictly enforced, the fares would not be excessive; but it is rare for them to be applied justly, and whenever a dispute occurs, it is the traveler who pays the bill. The taximeter system is not used; its mere mention has always called forth a strong protest from the autocratic London driver. After Paris, cabs are more common in London than any city in the world. English capitalists have realized the possibility of replacing the horse vehicle by the gasoline cab, and the next two years are likely to see a change as great as that just accomplished in the

CHENARD & WALCKER CAB A SPEEDY ONE

'bus service. Five hundred Renault cabs, similar to those in Paris, are already on order, and will be running this year, Darracq is said to have booked a big order for their new type of cab, Bayard-Clement is negotiating, and several of the smaller French manufacturers are endeavoring to place series of cabs with London syndicates. All these vehicles will be operated on the taximeter system, and their introduction on such lines will sound the death knell of the old-time horse vehicle.

Only a few weeks ago a new Public Carriage Order was passed by the British authorities making the adoption of the taximeter optional for London auto cabs up to June 30, 1907, and compulsory after that date. The scale of charges which will then come into force is such as will give the auto cab a distinct advantage over the horse vehicle, and with a compulsory taximeter system no one will take a horse cab when a motor vehicle is available. The scale of charges for the automobile cabs is the very moderate one of 17 cents for the first mile and 4 1-4 cents for every subsequent quarter. Thus, a two-mile journey for two passengers would cost 34 cents. The law allows the auto cab companies to charge for luggage and extra passengers, but, as is the case in Paris, the companies do not intend to avail themselves of this permission. The taximeter as used in all European cities is an ingenious instrument which registers the amount due for either distance covered or time occupied. On starting a journey the driver lowers a small metal flag, and instantly 8d. or 75c.—whether you are in London or Paris—appears on the dial. If the cab stops on its journey, or moves at less than six miles an hour, a clock within the instrument comes into operation and advances the figures a mile per ten minutes. It is impossible to hire an auto cab by the hour, but whether the vehicle is moving or standing still the charge will be the same. Very extensive tests made in Paris have proved that on one-hour journeys, whether the cab was standing still, running at a normal speed, or alternately racing and crawling to suit traffic conditions, the fare was practically the same.

Germany was not very successful in her first attempts to replace horse cabs by motor-driven vehicles. Electrics first made their appearance at Cannstadt, but were soon found to be too costly. Berlin, a little later, adopted electric-driven cabs, with hardly more satisfactory results. Finally, the same company placed a number of gasoline cabs on the streets, with rather more success. The Berlin taximeter cab tariff is 17 1-2 cents per 656 yards, and 2 1-2 cents for each additional 328 yards, the charge for a one-mile journey being approximately 27 cents.

What New York Is Going to Do.

Compared with European cities, New York cab fares are excessive, even when allowance has been made for the all-round higher cost of living in this city. If the correct legal fare were always applied, there would not be much ground for complaint; but everyone who has made acquaintance with the New York cabby knows that he nourishes a supreme contempt for legalities. Motor cab service has been confined to electric vehicles of a type that Paris and Berlin discarded a couple of years ago. A comparison of fares is practically impossible, owing to the point-to-point system in use here. The rate given by the only company operating electric cabs in New York is $1.50 for any point between Thirtieth and Fifty-ninth Streets, approximately a mile and a half. The price for the same distance in a Paris gasoline taximeter cab would be less than 30 cents, and for this amount two people could be carried as against only one in the home vehicle. There is obviously room for improvement here, and improvement will not be long in coming, for a company is at present being floated to operate gasoline automobile cabs in New York on the taximeter system as known in Paris. Two hundred Renault cabs are at present under construction, and will be running on New York streets within twelve months. The cars will be entirely built abroad, and will be similar in every respect to those in use in Paris and London. Lest visions of a quick automobile run from a downtown office to Harlem for a paltry quarter should arise, it is necessary to mention that the Paris cabs will not bring the Paris fares with them. Nevertheless, the promoters of the scheme assure that a lower tariff will be adopted than any at present in use in New York for either horse or mechanically driven cabs. The use of the taximeter, too, will make the cabs immensely popular with the public. There will be no haggling before the journey, nor any bad words at the end of it. Once adopted, the old type of cab will disappear from the streets as rapidly as the horse car gave way before the electric street car. Other important French firms, having produced a cheap and economical type of cab, are endeavoring to find an outlet in New York. Home constructors are looking into this matter, too, foreign systems having been closely studied, and developments are likely to proceed with activity

LONDON AUTO CABBIES ON TRAFALGAR SQUARE. THEY DO NOT YET KNOW THE BENEFITS OF THE TAXIMETER.

HIGHER REGISTRATION FEES FOR MASSACHUSETTS

BOSTON, Feb. 11.—The recess committee on taxation of the Massachusetts Legislature, which was appointed last year to consider methods of increasing the revenues of the State, and which held hearings through the summer and fall months at the State House and in various other places, has presented its report. It deals with the question of increased fees for the registration of automobiles, to secure funds to make repairs on the State highways, at some length, and presents with its report a bill which, in effect, is for a graded system of registration fees.

The bill provides, in brief, that all automobiles and motor cycles, except ambulances, fire engines and road rollers, shall be registered with the Highway Commission. In applying for registration the owner shall state the name of the maker of the automobile, number and size of cylinders, character of motor power and the horsepower. Motor cycles, express wagons, trucks and traction engines and other vehicles used solely for business purposes, shall be registered for $2 each. The registration fee for other automobiles shall be determined by the Highway Commission, which shall take into consideration the damage which such automobiles cause the State highways and the amount of revenue required to repair the damage. It is provided that the registration fee shall not be in any one year less than $5 nor more than $15.

The bill further provides that upon the transfer of any automobile in the $2 class its registration shall expire. An owner of an automobile in the class for which the registration fee is $5 may be granted a new registration on transfer of his car for $2. If the owner transferring the car does not give the Highway Commission notice within ten days his registration expires.

Another provision in the bill is that the registration of every automobile in the $5 or over class shall expire July 1, 1907. After that date the registrations expire on the first of March following the time they are registered. Continuing, the bill reads: "The said commission shall, on or before the first day of February in each year, determine the fees to be charged for such registrations and shall give written notice thereof to each owner or person in control of an automobile as evidenced by the records of its office and subject to such registration fee." Concerning cars from out of the State the bill cuts down the time they may be operated in Massachusetts without a Massachusetts registration to two days.

In section two of the bill the fee for a manufacturer's or dealer's registration certificate is increased from $10 to $25. The third section provides that the fees received under the provisions of this act, together with all other fees received by the Highway Commission from automobiles, shall go to the State highway maintenance fund, which is to be used for the maintenance of the State highways and for carrying out the provisions of the act, in sums appropriated by the General Court. The bill contemplates the possibility of the Highway Commission establishing branches for the purpose of registration in other cities, for it provides that application for registration may be made to the Highway Commission, or any agent designated for the purpose.

In its report accompanying the bill the committee says in part:

"We have found a widespread desire for change in the present license or registration system of automobiles. At the various hearings of the committee arguments were convincing and unopposed that these machines have caused and are causing unusual and alarming damage to our improved highways; and that unless steps are quickly taken to check this evil or provisions made for their frequent repair, our State highways must soon lapse into furrowed stretches of broken stone. The occasion for this almost universal complaint is that the roadways of the State, lately constructed at large expense by contributions in way of taxation from all property, are rapidly being desurfaced and laid waste by this particular class of vehicle, the loose and projecting stone left uncovered rendering the road a source of discomfort to every variety of travel, and in some instances almost impassable. The rapid development of these machines and their increased use upon our improved highways have proved so injurious thereto as to convince those charged with the construction and repair of highways that such sums as the Commonwealth has thought proper to annually appropriate for maintenance will fall far short of the amount needed. Even were the modest fees now required for registration of automobiles devoted wholly to repair, the sums so received would prove wholly inadequate to make good the mischief they accomplish. These conditions have been apparent to owners of automobiles as well as to others; and it has been gratifying to the committee to observe that owners have not opposed additional registration fees proportionate to the damage caused, provided the sums thus received be expended in improvement of roadways. At points adjoining neighboring States, notably in the Berkshires, complaint is made that the injury is caused or largely aggravated by foreign machines, their owners crossing the border to enjoy the beauty of our scenery and the freedom of our roads for a few days only, rendering no return for the ravages of their powerful, swiftly moving touring cars. While the committee realizes that the presence of these strangers is not without some compensating return, it believes a stay beyond the reasonable length required for passage through the State should subject the owner to burdens similar to those imposed upon our own citizens operating cars.

"The Highway Commission has experimented in various ways and with various kinds of rock to produce a good road surface proof against speedy disintegration, but thus far has been unable to produce a surface sufficient to withstand the severe strain of the automobile. This machine, to gather and maintain its headway, seems to break into and loosen the binder, so called; clouds of dust follow in its wake, and are blown away. With the flight of each machine similar results follow, and the roadway is denuded. The Commission has also experimented with oil and tar to preserve the surface, but not as yet with results wholly satisfactory. While it is hopeful of solving the problem ultimately, yet in any event the process must prove an expensive one, the requirement for which is largely due to the presence of the automobile."

HOPES FOR BETTER PENNSYLVANIA LAW.

HARRISBURG, PA., Feb. 11.—Senator Crawford has introduced in the Pennsylvania legislature a new motor vehicle law. It provides for the annual registration of motor vehicles at a charge of $3, the State issuing tags as at present. Operators, other than the owner, must become "licensed drivers," paying a fee of $2 and wearing a badge when driving. No person under the age of 18 being permitted to operate a car under any circumstances. Non-residents whose cars display tags indicating the State by which they are issued are exempt from the registration and license provisions for a period of ten days.

The rate of speed permitted is a mile in four minutes where houses are less than 100 yards apart, reducing speed to a mile in six minutes at curves and cross streets. A mile in two minutes where houses are more than 100 yards apart, reducing to a mile in four minutes at curves, cross roads, descending steep hills and passing other vehicles. This is limited by the usual provision forbidding any speed greater than is safe, considering road and other conditions. No local ordinances fixing lower rates of speed are permitted except in cases of parks and boulevards, where, however, the rate shall not be less than that permitted horse-drawn

vehicles and the erection of signs is required. Physicians answering emergency calls and vehicles used by the military, police and fire department are, when in the performance of duty, exempt from speed restrictions.

The customary regulations as to brakes, lights and signal device are included, and operators of motor vehicles are required to give such reasonable notice of their approach as the safety of the public requires, and in meeting animals that appear to be frightened or unmanageable to stop without waiting for signal to do so. An effort is made to place motor vehicles on exactly the same basis as horse-drawn vehicles in the use of the highways and to induce the displaying of a light by all vehicles.

The penalties for the violation of the law are as at present, except that the operation of a motor vehicle by any intoxicated person renders him liable to a fine of $100 or 30 days' imprisonment.

The rules of the road are plainly indicated and the bill is a decided improvement on the law at present in force. It has the approval of the State Highway Department and is indorsed by the Pennsylvania Motor Federation, as while it protects the public in their use of the highways it will tend to free automobilists from the petty persecutions of the past two years. Should this bill became a law the present method of licensing would continue in effect until the end of the current year.

MISSOURI LEGISLATION UNCERTAIN.

JEFFERSON CITY, Mo., Feb. 9.—Missouri automobilists, at least those of the Automobile Club of Kansas City, have given up the ordinary methods of securing legislation favorable to them and have employed an attorney to represent them at the capital of Missouri. The automobile which was abroad on the streets of this picturesque city to demonstrate to rural legislators the delights of motoring, has been sent back to St. Louis, where it should have remained in the first place. It only gave the fellows who got fewer rides than the others a chance to line up against a more liberal law.

There was a hearing before the joint committee of jurisprudence of the house and senate. From Kansas City there were C. C. Madison, R. J. Ingraham and O. A. Lucas, attorneys for the club, and H. G. Blakeley, secretary of the club; from St. Louis, Roy Britton, secretary of the St. Louis Automobile Club, and Judge James Seddon. All of these argued in favor of the bill, while Representative Brooks, who has a bill requiring owners to give bond before being permitted to operate their cars, spoke against it. The committee did not agree on a report. A Kansas City member, who had been lined up, went over to the opposition. The Kansas City club finally realized that the bill would have hard sledding unless intelligent work was quickly directed toward it, and they began by getting a good lobby of one man. The country members, except those from St. Louis county, are generally liberal, but the St. Louis county members claim the speed nuisance has been so intolerable that it must be checked.

Further interest in the legislature has resulted from the passage by the house of a bill permitting the levy, by counties, of a special tax of 50 cents on the $100 for road and bridge purposes. The bill is a resolution and will permit the voters of the entire State to vote upon the matter as an amendment to the State constitution.

Other things in the way of Missouri legislation that will interest autoists include a bill by Representative Botsford. It allows a speed of 25 miles in the country, but if a horse is frightened, the name of the autoist must be left with the horse driver. The most novel clause of the bill, however, permits cities to set aside certain streets where speed tests may be allowd at certain hours.

Another bill, by Representative C. A. Willard, of St. Louis, proposes to create the office of State motor vehicle commissioner, who shall have authority to appoint as many deputies as necessary to enforce the speed laws in the different cities of the State. The office of commissioner is to be appointive by the governor and to pay $2,500 salary annually.

EX-PRESIDENT FARSON ON ILLINOIS LAW.

SPRINGFIELD, ILL., Feb. 11.—Uniform auto regulation in the State of Illinois before the end of this year is predicted by John Farson, ex-president of the American Automobile Association. This is indicative of the spirit which is causing automobilists throughout the State to make a concerted demand on the general assembly for better laws. If the present laws relating to automobiling were strictly enforced, Mr. Farson says, not a man in Illinois could afford to indulge in driving. Every city, town and village in the State, he asserts, has practically a different set of ordinances relating to automobiles, and it is only due to the leniency of local authorities that the ordinances are not enforced. Illinois should give automobilists a uniform speed law—one which would enable drivers to know just what speed can be made in any part of the State.

"At present the speed limit is absurd," said he. "An old lumber wagon can make better time than eight miles an hour, and that is the speed which the authorities demand we shall not exceed. Under proper regulations and conditions, twelve to fifteen miles an hour in the city and twenty miles an hour in the country would be about right. At the present time in Chicago there are a number of different laws affecting speed. The city has one ordinance and the park boards each have different rules, which, if violated, arrest and fine immediately follow. I know one of the park boards has a rule that automobiles must toot their horns at crossings, and another has an ironclad regulation that if the horn is tooted at crossing the perpetrator shall be arrested at once. Of course, this all goes to show that a great many reforms must be made. The bill which is now before the legislature takes all these into consideration, and I believe they will be acted upon favorably. Other States are beginning to see that the automobile is bringing good times and prosperity with it and they are grateful in many ways. In Illinois about the only persons who think of the automobile as a sign of prosperity are the country constables."

VERMONT'S LOW RATIO OF AUTO ACCIDENTS.

ORWELL, VT., Feb. 11.—A Vermont paper—the St. Albans *Messenger*—has compiled statistics which show that the automobile killed only one person in Vermont in 1906, while horses, in various ways, were responsible for fourteen violent deaths. Of course, auto and horse are not in the strict ratio of 1 to 14; but, laying aside mathematical accuracy, one death in twelve months in a population of over a third of a million is not a positively murderous record to chalk against the chauffeur.

Inasmuch as the Vermont legislature has not seen fit to make automobile laws in accordance with the views of Colonel Joseph Battell, of Middlebury, who is well known throughout the State as an ardent hater of automobiles and an equal lover of the horse, autoists now commend his efforts in the direction of abolishing electric cars, railroad trains, firearms, poisons—in fact, anything that ever causes death by accident—except the horse.

REGISTRATION LAW IN KANSAS.

TOPEKA, KAN., Feb. 11.—A bill providing for the registration of automobiles has passed the Kansas house by a vote of 65 to 15 and is now in the hands of the Senate. It provides that all automobiles in the State of Kansas shall be registered with the secretary of state, the registration fee being two dollars. This regulation, does not apply to traction engines, bicycles and tricycles. In making the declaration of ownership, the automobilist's name and address, the seating capacity of the car, the maker's name and color of machine shall be given. Registration numbers shall be carried in the front and rear, shall be in figures not less than six inches high, of proportionate width, and of a color to render them easily distinguishable. Penalties for violation of the act, which shall come into operation from May 1, 1907, are a fine of not less than ten dollars nor more than fifty dollars.

FEBRUARY ACTIVITIES OF THE AUTO CLUBS

Hawaii Prepares for its Floral Parade, February 22.

HONOLULU, HAWAII, Feb. 1.—At a meeting of the Automobile Club last night the matter of the annual floral parade came up and aroused a great deal of enthusiasm. Preparations are being made to eclipse last year's affair, and the fact that there are now 106 automobiles on the island intead of fifty-five, as was the case a year ago, promises well for the success of the parade. E. F. Bishop, on the part of a number of autoists, accepted the invitation of the parade committee of the club, requesting the co-operation of individual owners.

A number of other subjects were taken up at the meeting which was well attended, after the matter of the floral parade had been disposed of. Chief among these was the question of good roads. Chairman McCandless, of the good roads committee, reported the result of an interview he had had with Supervisor S. Dwight, who said that attention would first be paid to putting the roads along the water front in good shape, after which King and School streets would be looked after, while the other roads about the city were to be put in shape and the damage caused by the recent storm repaired as soon as possible. It was his ambition to secure at least $15,000 a month for road work and in this he was supported by the other supervisors.

Mr. McCandless' report was followed by a general discussion of the road question. The manner in which oiled roads had withstood the severe storms was cited in their favor, and the use of bitumen was also suggested, a test strip of this type of road having been laid on Queen street and proven quite successful, its only drawback being its heat holding quality. It was decided to extend an invitation to Samuel C. Lancaster, of the good roads branch of the Department of Agriculture, who is shortly to deliver a series of illustrated lectures on road making throughout the West, to come to Honolulu.

New Jersey A. & M. C. Preparing for Endurance Run.

NEWARK, N. J., Feb. 11.—At a meeting of the board of governors of the New Jersey Automobile and Motor Club held last week, initial steps were taken for the first annual endurance contest of the club, which according to present plans will take place sometime this spring. The matter was thoroughly discussed at the meeting and a committee was suggested to look after the details of this event. H. A. Bunnell, secretary of the club, has been named as chairman of the endurance committee, but other members of the committee have not yet been selected, as it was not deemed advisable to select the other names until later, when it can be learned definitely those members who will be able to do the work that will fall to this committee.

It is expected that within a few weeks the committee will be in working order. Every member of the club is in favor of the contest, and there will be ample support, even so far as contributions for prizes in silver cups to winners in the big event.

The committee's real work will be in selecting a suitable route over which the contest will be run, and rules to govern the contestants.

National Association of Autoists for Canada.

MONTREAL, Feb. 11.—Rumor has it that a convention of automobilists embracing the Dominion of Canada, will be held in this city during the week of the Automobile and Sportsmen's Show, April 6-13, for the purpose of organizing a national association for Canada. The Automobile Club of Canada, whose headquarters are here, will take the initiative, and an organization similar in character to the American Automobile Association is likely to be formulated.

How Pittsburgers Secured the Signboards.

PITTSBURG, PA., Feb. 11.—The action of the Automobile Club, of Pittsburg, in securing the erection of road signs in Allegheny County, is one that should be followed by all other clubs in that as well as other States where similar laws exist. A year ago the club sent a committee to the county commissioners asking that the roads in the county be properly marked, as the few signs that were then in place were nearly all illegible. They were informed that under the existing laws the township supervisors were required to maintain such signs.

The matter was presented to the court and on the next quarterly return day constables were instructed to see that proper signs were erected at all cross roads. The following return day officers who failed to carry out the order of the court were given to understand that the matter must receive immediate attention, and by the time the county roads were in shape to use all cross roads were marked.

Every automobilist who has done any touring realizes the advantages of such signs and the annoyance of finding himself at an unmarked fork or cross roads. The desired results were secured in this case by the expenditure of perhaps an hour's time, and other clubs and individuals should profit by it and take similar action.

Aero Club Banquet Proposed at St. Regis.

NEW YORK, Feb. 11.—The first banquet of the Aero Club of America will probably take place at the St. Regis Hotel early in March. The speakers will include many prominent aeronauts.

For the Gordon Bennett International Aeronautic Cup Race at St. Louis in October next fifteen balloons have been entered, three each from the following clubs: Aero Club de France, Aero Club of the United Kingdom, Real Aero Club de Espana, Deutscher Luftschiffer-Verband, Aero Club of America. The entry is only one less than the number of participants in the race of 1906. If the three late Italian entries are accepted the 1907 race will have two more participants than its predecessor.

The Aero Club is now located at its new quarters, No. 12 East Forty-second street, where a comprehensive library of aeronautics is available to members. The telephone is 4321-38th. A committee will be appointed in the near future to prepare a set of rules, covering contests for the prize to be given for heavier than air machines without gas.

It is proposed to have a balloon ascension at Washington on Washington's birthday. Members have been asked to submit designs for a club flag.

The Cleveland Club's Ideal Road Is Assured.

CLEVELAND, Feb. 11.—Secretary Asa Goddard, of the Cleveland Automobile Club, says that the new road to be constructed under the auspices of the club will be one of the finest stretches of highway in the country. It will be built on the principles of the old Roman roads which have stood for centuries. The aim will be to get the foundation right; then, if the project runs a little short of funds, a little less money will be spent on the surface until such a time as it can be resurfaced. The foundation will be two and a half feet of rock with eight inches of chipped stone or course gravel on top of that. The new highway will take the place of the worst stretch of pike between Cleveland and Buffalo. The club has made another call on the automobile owners of Cleveland, calling attention to the deplorable condition of the highway east of Cleveland, and of the good work which the organization hopes to accomplish. Small donations are asked from all owners in this vicinity as well as from the farmers along the proposed route. Judging from the manner in which subscriptions come in, the success of the enterprise seems assured.

Long Islanders Want Eastern Parkway Extended.

BROOKLYN, N. Y., Feb. 12.—Entertainment in the shape of a smoker and vaudeville programme was the order of the evening at the Long Island Automobile Club last Friday, February 8. Members brought their friends and there was a large gathering, many of whom come in cars despite the condition of the streets. At the last meeting of the club a resolution was passed approving of the extension of Eastern parkway through Cypress Hills cemetery. The Jamaica Automobile Club is also lending its assistance in the matter and the aid of local politicians has been enlisted. Secretary Pierson, of the Long Island Club, has also been instrumental in taking up the matter of shipping autos abroad without crating, but as yet the steamship companies do not consider it practicable to do so. At the next meeting of the club, the Matheson, Oldsmobile, Winton and American Mors cars will be placed on exhibition.

Missourians Protest Against High Toll Rates.

KANSAS CITY, Mo., Feb. 9.—The Automobile Club of Kansas City, to which was extended an invitation to assist in the dedication of the mile and three-quarters-long viaduct which connects the two Kansas Citys and spans the Kaw river, refused to participate in any parade because the rates on the viaduct, which charges toll, are too high. The club informed the officials of the project that it could give no parade, as to do so would be practically to sanction the use of the viaduct. The rates the autoists object to are 35 cents for runabouts, the same as for a four-horse team, and a higher toll for larger vehicles. This is the only toll proposition in Kansas City and vicinity, except one bridge across the Missouri river, and autoists are preferring to tread their way among switchtracks in the bottoms until the rate is made reasonable for passage over the asphalted surface of the big bridge.

Marylanders Tour to Washington in May.

BALTIMORE, Feb. 11.—Now that the local auto show is a thing of the past, the Automobile Club of Maryland is preparing for some very interesting events to be held in the near future. Besides the H. M. Rowe Touring Contest, an endurance test to Washington will be held in May under the auspices of the club, which is now recognized as the great leader in everything automobiling south of the Mason and Dixon line. This test will attract a huge entry list, as every one of the local dealers will be interested to see that at least one of the cars he represents is sent over the rough and hilly roads that connect the two cities. A better course could not be found, as the road conditions are excellent for the purpose, and the course is well known to most of the local autoists.

Germantowners' Annual Banquet a Memorable Affair.

PHILADELPHIA, Feb. 11.—The handsome banquet hall of the Automobile Club of Germantown, was crowded on Friday night last, on the occasion of the organization's third annual banquet. Besides a full turn-out of members, many men prominent in city and State were present as guests, among them being State Senator W. C. Sproul, City Solicitor John L. Kinsey, E. T. Stotesbury, Peter Boyd, J. Hector McNeal, Isaac Starr, Jr., and others. The good roads feature was kept prominently to the fore throughout the evening, all the speakers having something to say on the subject. The Germantown organization is the sponsor for the proposed Philadelphia-Pittsburg highway, and has succeeded in interesting many prominent automobilists and legislators in the project.

Quakers Elect Charles J. Swain as President.

PHILADELPHIA, Feb. 11.—The first annual meeting of the Quaker City Motor Club was held at the club's quarters in the Hotel Majestic last Thursday night. Nearly 200 members were present. The election resulted in the choice of the following officers to serve during the ensuing year: President, Charles J. Swain; first vice-president, George H. Smith; second vice-president, C. C. Fitler, Jr.; treasurer, A. T. Stewart; secretary, Theodore B. Creamer. The board of governors will be made up of Messrs. Swain, Smith, Fitler and Stewart, and G. Douglas Bartlett, E. C. Leeds, Nathaniel Hathaway, E. Hubbard Fitch, E. C. Johnson, A. E. Maltby, W. Wayne Davis, G. Hilton Gantert and L. D. Berger.

CLUB ITEMS OF INTEREST.

PHILADELPHIA.—The annual banquet of the Automobile Club of Philadelphia is scheduled for Friday, March 8, at the club house, 1409 Walnut street. A number of automobilists of national fame have been invited.

CLEVELAND, O.—The Cleveland Automobile Club is making great efforts to be a source of information to every resident autoist as well as to visitors. The name and address of every registered owner in Cleveland will be kept in a card index, this being but one of the many innovations along this line introduced by Secretary Asa Goddard.

WILLIAMSPORT, PA.—Organized with but forty charter members recently the Williamsport Automobile Club now has one hundred on its rolls and applications of fifty more waiting to be passed on. The club will devote its attention very largely to road improvement, and will hold a hill clumb on Grampian Hill, which has about a 1,000 foot rise, as soon as the weather is favorable.

GRAND RAPIDS.—The local automobile club has not been the center of much enthusiasm during the past year, but new blood is now expected in the organization, and the club is making many plans to make up for lost time. If a new talked of University club is formed, it will probably become a part of that. A new club house has been planned at Cascade, 12 miles from the city.

CHICAGO.—A number of motor boat enthusiasts have got together here and formed the Illinois Motor Boat Club. The officers are as follows: Commodore, Theodore Weise; vice-commodore, M. L. Ames; rear-commodore, John Clark; secretary, W. H. Hungerford; treasurer, O. N. Hanson. The managing board is composed of the following: William Hoffman, Thomas O'Hearn, Edward Hester, Charles P. Crouch and William P. Weren.

BOSTON.—At the first fortnightly "smoke talk "of the season held by the Bay State Automobile Association, the subject was that of magnetos, and was gone into at some length by Harold H. Brown, who also spoke of the lessons of the New York show. The Bay State Association contemplates expanding and to that end extra quarters adjoining the present building have been secured; the rooms will be enlarged to provide for about seventy-five additional guests and a billiard room will be installed on the second floor.

THE MODERN HIGHWAYMAN.—From *Life*.
COUNTRY OFFICER: "Fifty dollars, sir! You were exceeding the speed limit.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows.

Feb. 18-23.....—Buffalo. Fifth Annual Automobile Show, Convention Hall. D. H. Lewis, manager, Teck Building.
Feb. 18-23.....—Cleveland Automobile Show, Central Armory, Cleveland Automobile Trade Association. George Collister, manager.
Feb. 18-25.....—San Francisco, Golden Gate Park Skating Rink. Automobile Show, Dealers' Association and Automobile Club of California.
Feb. 18-25.....—Worcester, Mass., Automobile and Power Boat Show. Automobile Dealers' Association. F. N. Prescott, manager.
Feb. 19-26.....—New York city. Madison Square Garden, National Motor Boat Show. Captain J. A. H. Dressel, manager.
Feb. 25-Mar. 2..—Portland, Me., Second Annual Automobile and Power Boat Show, The Auditorium.
March 2-9.....—Chicago, Second Annual Power Boat Show, Seventh Regiment Armory. W. C. Andrews, manager, 19 E. Huron St.
March 2-9.....—Minneapolis, Automobile Show, First Regiment Armory, Minneapolis Automobile Dealers' Ass'n.
March 4-10.....—Kansas City, Mo., First Annual Automobile Show, Convention Hall. Frank L. Woodward, manager, Willis Wood Theater Building.
March 9-16.....—Boston Automobile and Power Boat Show, Mechanics' Hall and Horticultural Hall, Boston Automobile Dealers' Association. C. I. Campbell, mgr.
March 13-16....—Omaha, Auditorium, Second Annual Automobile Show, Omaha Dealers' Association. T. Gillian, manager.
March 18-23....—Providence (R. I.) Automobile and Power Boat Show, Infantry Hall. F. M. Prescott, manager.
April 1-6.....—St. Louis, Mo., Automobile Show, Jai Alai Building, St. Louis Automobile Dealers' Association.
April 6-13.....—Montreal, Canada, Second International Automobile and Sportsman's Exhibition. R. M. Jaffray, manager, 209 W. Notre Dame Street.
April 8-13.....—Pittsburg, Pa., First Annual Show of the Pittsburg Automobile Dealers' Association, Duquesne Garden.

Race Meets, Hill Climbs, etc.

Feb. 22.....—Los Angeles, Cal., Pasadena-Altadena Hill Climb, Automobile Dealers' Association of Southern Cal.
Feb. 22.....—Atlanta, Ga., Hill Climb, Atlanta Automobile Association. F. E. Rushlander, secretary.
Feb. 22.....—Washington, D. C., Aerial Race, Aero Club of America.
May 30.....—Philadelphia, Hill Climb, Quaker City Motor Club.
Oct. 19.....—St. Louis, Mo., International Aerial Race for the Gordon Bennett Prize. Aero Club of America.

FOREIGN.

Shows.

Feb. 16.....—Turin, Italy, Automobile Show.
March 1-16.....—London, Olympia Commercial Vehicle and Motor Boat Show.
April 6-13.....—London, Agricultural Hall Motor Show.
May 4-15.....—Madrid, Spain, Automobile Exhibition, Palace of Fine Arts, Royal Automobile Club of Madrid.
May 15-26.....—Zurich, Third Annual Swiss Automobile Show.

Race Meets, Hill Climbs, etc.

Feb. 23-27.....—Voiturette Contest, Automobile Club of Italy.
March 20-27....—Nice (France) Automobile Week.
April 1-16.....—Spring Wheel Competition.
April 21.....—Targa Florio Tour (Sicily), Auto Club of Milan.
April 25-28.....—Touring Contest, Automobile Club of Touraine.
April 28.....—Chateau Thierry Hill Climb.
May 24-27.....—Voiturette Contest, Automobile Club of Austria.
May 29-June 1..—Irish Automobile Club Reliability Trials.
June 3-12.....—Herkomer Cup, Automobile Club of Bavaria.
June 14.....—German Emperor's Cup, Taunus Circuit, Imperial Automobile Club.
June 24-29.....—Scottish Reliability Trial, Scottish Automobile Club.
July 1-July 8...—Grand Prix, Automobile Club of France. (Exact date to be decided upon.)
July 14, 1908....—Paris to London Aerial Race.

CALIFORNIA CLAIMS HIGHEST PERCENTAGE.

San Francisco, Cal., Feb. 6.—It will doubtless come as a surprise to the average autoist to learn that California can boast of more automobiles in proportion to her population than any other State in the union, and the same thing is true of her chief city, San Francisco, which sheds some light on the keen interest taken in the forthcoming show to be held there in the newly erected Coliseum, from February 18 to 24, which has a floor space of 75,000 square feet, or more than that of the Garden in New York. Regarding percentages there is said to be one automobile owned in the country at the present time for every 566 people. New York State has one for every 210 people, while California has a machine for every 173 inhabitants. Chicago boasts of an auto for every 377 people, but San Francisco goes this better to the extent of having one for every 133 people. Many of the exhibits that graced the New York and Chicago shows have been sent on by a special train running on a passenger schedule. No efforts have been spared to plan as complete a show as any ever held in the country, and, what with the elaborate decorations and elecrtic lighting, it is confidently expected that San Francisco's first effort will be in every way a counterpart of this season's shows in the East. The railroads have made a special rate of a fare and a third from any part of the State.

KANSAS CITY'S SHOW PREPARATIONS.

Kansas City, Mo., Feb. 9.—Not only having the same decorations but the same designer to install them, Kansas City's show, which is to reign supreme during the week of March 4 to 9, will be a sort of replica of the Madison Square Garden exhibit. The show will be held in Convention Hall; the decorative scheme being modified in accordance with its size as it lacks about a third of the space offered by Madison Square Garden. E. H. Moriarty and J. H. Wittman, represented the Kansas City Automobile Dealers' Association at the Garden show in January, and Harry Houpt, head of the New York Thomas branch said to Mr. Wittman: "If you fellows do business like that at Kansas City, I'm going to wear my old clothes if I ever come West. If I wear a good suit I'll be traded out of it before I get back."

PITTSBURG SHOW TO BE HANDSOMELY DRESSED.

Pittsburg, Feb. 11.—Green and gold will be the predominating colors in the general scheme of decoration at the automobile show in Duquesne Garden, April 7-13. The floors will be covered with green denim to show the brilliant colors of the cars by contrast. All the signs will be uniform in size and lettering, and will be suspended from the ceiling. The coat of arms lately adopted by the Pittsburg Automobile Dealers' Association is the seal of Pittsburg surrounded by an automobile tire. It will also be shown on the official button for the exhibitors. Cars varying in cost from a $500 runabout to a $10,000 touring car will be shown.

NORTH CAROLINA AGAINST AUTO THEFTS.

Senator George H. Bellamy, of North Carolina, has introduced a bill in the Senate of that State to punish the stealing of automobiles. The theft of vehicles is punishable, as it constitutes an infraction of the law, but heretofore automobiles have not been included under this statute. After covering fully what constitutes the larceny of an automobile, the bill concludes by imposing a penalty of four months' imprisonment upon anyone guilty of an infringement of the bill. As soon as the bill has been passed by the Senate its promoter will use his personal influence with Representative Morton to rush it through the House of Representatives. No opposition is expected.

The Western Power Boat Association has been formed by the motor boat clubs of Chicago as a nucleus. Every club in the Middle West will be invited to join.

THE AUTOMOBILE

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The Boundless West Deserves a National Show. Chicago's show demonstrated unquestionably that as long as automobile exhibitions are necessary, one of a national character must be held in the West as well as in the East. These United States constitute a big country which is increasing in wealth and population in the West at greater speed than the present growth of the longer settled East. Furthermore, these Westerners are accumulating worldly possessions and in many instances they are realizing the capabilities and utility of the automobile more thoroughly than some of the conservative Eastern commonwealths where economy is more of a science than it is in the prosperous agricultural and mining States of the West. Distances are greater in the West and the necessity for covering them quickly is as much desired as anywhere else, for even the farmer and the ranchman consider a saving of time as a saving of money. In this growing popularity of the automobile in the boundless West there follows in its trail the unavoidable betterment of the roads and the consequent increase in land values. In the next decade it is safe to assume that many miles of first class highway will be built in Western States, and the automobile manufacturer is taking the West into consideration more than ever before in the distribution of his product. A national distribution of a particular make of automobile is as desirable as a national circulation for an automobile publication. Therefore, the Chicago show, with its large attendance of Western agents, would seem to meet a situation that requires a Western display of automobiles.

Promising Results from the Recent Fuel Test. While the fact that the internal combustion motor as at present in use in such large numbers for the propulsion of the automobile and the motorboat is capable of being run on almost any hydrocarbon sufficiently volatile to be vaporized, has long been known to those technically informed, the possibilities of fuels other than gasoline were but little considered in this country before the passage of what has come to be known as the "Free Alcohol Bill." Legislation of this kind is a thing of many years' standing on the Continent, by reason of which fact a great deal of data concerning the use of alcohol in the internal combustion motor has been collected. European makers and scientists have been experimenting with alcohol and alcohol engines for more than ten years past, and this fuel has come to have a very wide field of commercial application during that time. Nevertheless, there still remains a great deal to be done in this direction, and it is gratifying to note that no time has been lost in taking advantage of the opportunity here once it was presented.

Thus far the tests undertaken have been mainly of a popular nature, their chief object being to demonstrate that the automobile motor, as at present constituted, is capable of being run satisfactorily with fuels other than that for which it was specifically designed. This has been the case particularly with regard to the carbureter, a general impression prevailing that alcohol and gasoline are of such widely differing character that the same apparatus is not capable of handling both. That special apparatus is required in each case, when it is desired to obtain the highest degree of efficiency, goes without saying, but that the present-day motor and carbureter will run satisfactorily on kerosene or alcohol, in addition to gasoline, appears to have been demonstrated very conclusively by the recent test run, the results of which are given elsewhere in this issue. It is to be hoped that the matter will not be dropped at this point, but that further tests and experiments will be carried out.

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Success That Awaits the American Automobile. According to the statistics compiled by the Department of Commerce and Labor, the value of the automobiles and parts exported from the United States during the year 1906 amounted to $4,409,186, a gain of $1,714,531 over the corresponding total of 1905. This represents an increase of something like sixty per cent., and this becomes 132 per cent. when compared with the total for 1904. These facts are sufficiently startling in themselves and quite in keeping with the rate of growth experienced at home, but they do not mean as much to the American industry as the fact that the total for 1906 fell short by but $6,582 of equaling the value of the automobiles imported into this country from abroad during the same time. In 1901 there were only 314 automobiles manufactured in this country; during the same year France turned out 23,711, and a large part of them found their way to this country. Ever since then a goodly portion of all the automobiles made in France have eventually come into the possession of American autoists, not to mention those coming from other foreign manufacturers. In other words, Continental manufacturers were doing a large export business in automobiles with this country long before such a thing was thought of here—something that serves to form a basis upon which to make a comparison of the past year's showing as outlined above. Thus, it is not of such great import that the total valuation should reveal this remarkable increase as it is that it brings to light the fact that, for the first time, the American industry is almost on a par in this respect with its foreign competitors. In other words, that it has overcome an almost insuperable handicap in the short space of five years, and by so doing has gained the right to compete on even terms. The success that has greeted American machine tools and similar products in every part of the globe awaits the American automobile, and what the extent of its conquest will be but five years hence is something that baffles the imagination to conceive.

DETROIT'S SHOW IN PROGRESS.

DETROIT, MICH., Feb. 13.—The most successful automobile show in the history of the trade in this city, if exhibits serve as a criterion, is that which opened at Light Guard Armory Monday evening. While not to be compared to either of the New York shows or the one that was held last week at Chicago, the Detroit exhibition is nevertheless a compact little affair, and many of the best cars of the trade are represented.

Present conditions simply point out the crying need of this great automobile city for a commodious assembly hall. The Light Guard Armory is the only available place at present to hold a show, and the capacity of this is so limited that it can scarcely take care of the needs of the local manufacturers. Indeed, with the press of outside concerns that are bent on showing here, it is impossible for even Detroit factories to show all the standard models, and some even have preferred to convert their retail stores into showrooms. The Ford people have taken no space in the armory, but are holding a private show at the downtown agency but a couple of blocks away. The Car de Luxe is another that was unable to get any space whatever, former patrons having been given first chance.

At that the local show has several attractions that have been sprung here for the first time—runabouts that came to light in the City of the Straits within the past few weeks. Notable among these is the Brush $500 car, with solid rubber tires, which in design much resembles a light harness wagon, but of course is of much heavier construction. The Kermath Speedaway is a new one to be shown here for the first time, and is a high-grade runabout, listing at $2,000.

In the line of decorations the local show is very modest. Though plain, the entire armory and drill hall floors have been draped and decorated with the colors of the University of Michigan, maize and blue. The signs and displays are almost universal, and of the same colors with, of course, electric light attachments.

NECESSARY CHANGES IN FREE ALCOHOL LAW.

WASHINGTON, D. C., Feb. 11.—With a view to securing President Roosevelt's aid in bringing about certain amendments to the denatured alcohol law, Representatives Marshall and Hill, the authors of several bills on the subject now pending in Congress, recently held a conference with the President. The latter showed himself in sympathy with the demand for some changes in the present law and expressed the hope that Congress would enact the legislation which experience has shown is necessary. The original intention of the free alcohol law was to give the farmers of the country a chance to manufacture alcohol, but under the law and the regulations as they now stand the business is really thrown into the hands of capitalists or persons having ample capital. The Hill and Marshall amendments will enable the farmer, on a capital of a few hundred dollars, to establish his own plant and make alcohol for his own use as well as for sale.

THE KERMATH SPEEDWAY OF DETROIT, MICH.

DETROIT, MICH., Feb. 11.—The Kermath Motor Car Company, of Detroit, is the newest concern to enter the runabout field. The car is a light, high-powered runabout, and is known as the "Kermath Speedaway." It was exhibited for the first time this week at the Detroit Show, and has several distinctive features, among which may be mentioned the radiator design, the location of the time gears and commutator, and the method of hanging the engine and transmission. The price of the Kermath is $2,000.

EXECUTIVE COMMITTEE N. A. A. M. IN SESSION.

During the course of the Chicago show the Executive Committee of the National Association of Automobile Manufacturers held a meeting in the First Regiment Armory. At its close it was announced that the matter of holding a comprehensive test later in the season was deferred until the next meeting.

NOTED FRENCH AUTOIST DEAD.

A cable report from Paris announces the death in that city, at the age of forty-eight, of Léon Emmanuel Serpollet, a pioneer in automobile manufacture, and the best known exponent of steam as applied to automobile construction.

Léon Emmanuel Serpollet was born at Culoz, near the Swiss frontier, on October 4, 1858. College days over, Serpollet gave himself up to the study of mechanical problems, and was the first man in France to build a steam-driven automobile. He established a factory at Paris for the construction of light steamers, and was joined in 1899 by Frank Gardner, an American, the title of the firm being changed to Gardner-Serpollet. A huge business was done, Gardner-Serpollet engines being adopted by many large transportation, tramway and omnibus companies. Three years ago Serpollet brought out a new type of steam automobile, which met with much success. Last year he joined forces with M. Darracq for the construction of steamers on the Serpollet principle at the Darracq factory. A large factory was commenced adjoining the Darracq works at Suresnes, and has only just reached completion. The first series of steamers from these works will make its appearance this year. One of the big schemes of the Darracq-Serpollet combination was to contract, on the expiration of the present lease, for the entire Paris 'bus service, replacing the present horse service by their new vehicles. In the earlier days of French automobiling M. Serpollet was a prominent figure in speed and endurance contests. Three years in succession he won the Nice mile speed championship, and was the holder of the Rothschild Cup. He was a Chevalier of the Legion of Honneur. His death at the height of his career comes as a shock to all who knew him, and robs France of one of her most brilliant engineers.

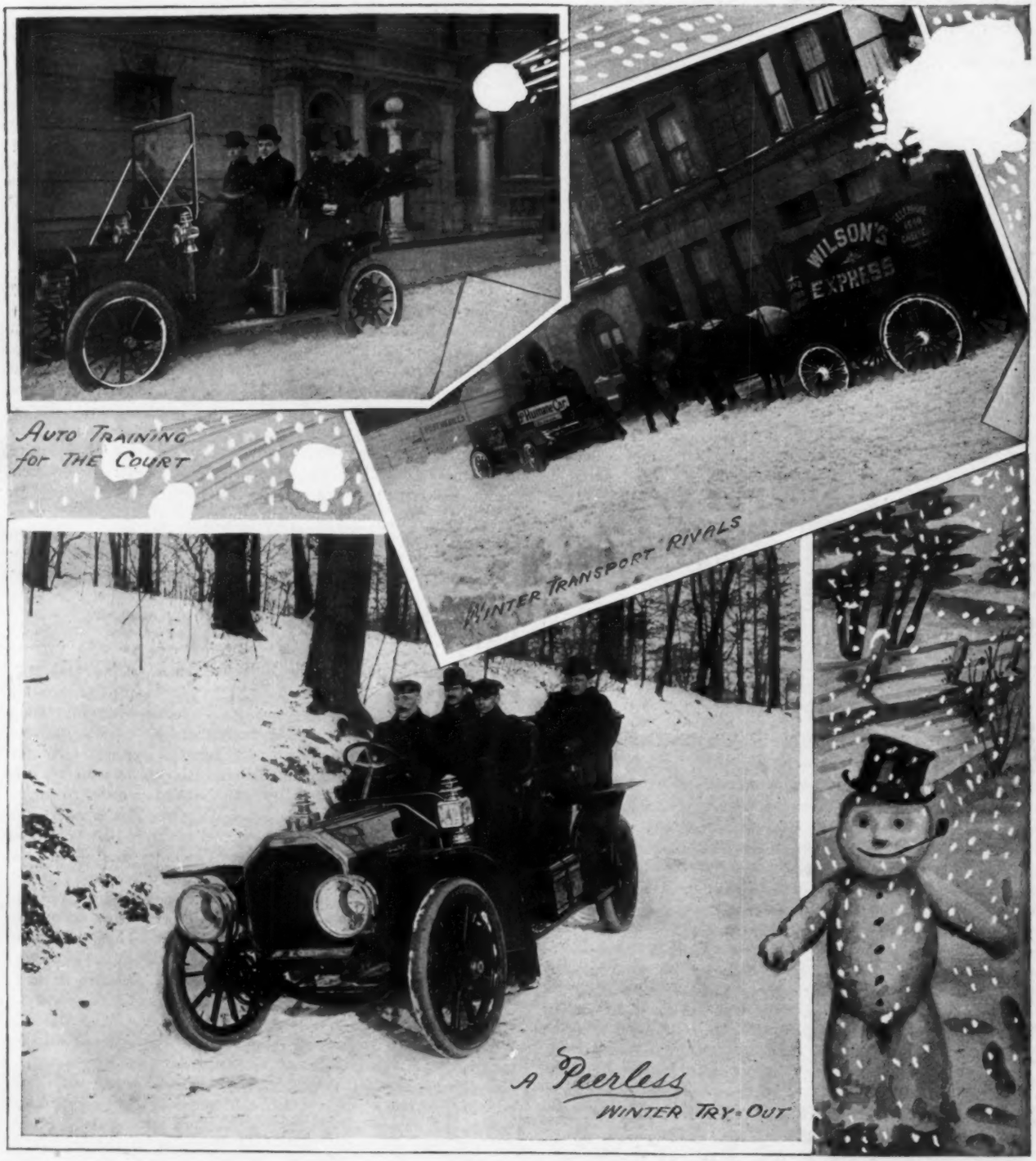
FAMOUS DRIVERS FOR EMPEROR'S CUP.

BERLIN, Feb. 3.—Preparations for the holding of the race for the Emperor's Cup over the Taunus circuit are progressing rapidly. Owing to continued bad weather no decision has been reached as to the widening of the course, the necessity for which has been mentioned in numerous announcements regarding the race. The list of drivers who will participate, so far as is known at present, is as follows: The three Mercedes cars will be handled by Camille Jenatzy, Director Willy Pöge and Otto Salzer, it being probable that Alexander Burton will be nominated as substitute. The Eisenach factory has named Robert Schmidt and Eduard Bauer as its drivers, with J. Simpson as substitute, while the Argus interests have nominated Wilhelm Flohr. The Metallurgique drivers will be F. von Reinhardt, E. Bussing and H. Wilhelm; those of the Pipe, von Hautvast, Baron de Caters and Deplus; the de Dietrich, Duray, Rougier and Gabriel, with Sorel as substitute; and the Bianchi, Tomaselli and Maserati. The single "F. L. A. G." car will be driven by G. B. Raggio, and the Lucia by Guillaume Busson; the Mors will be in charge of Gillet Hourgiere.

The Adler works have taken time by the forelock and have already sent one of their cars over the course. With the exception of the racing seats, it is their standard touring type.

PERHAPS WEIGEL RACER FOR VANDERBILT.

On board the Cunard liner arriving from Liverpool this week was Reginald Lassen, who brought with him a new 40-horsepower English automobile known as the Weigel. Mr. Lassen claims that this machine is a combination of the features of the Renault and the Mercedes. Two Weigel machines have been entered in the French Grand Prix to be run next July. One will be driven by the designer, the other by Lee-Guinness, the famous amateur driver. It is stated that a special Weigel racer will be built for the next big race in America. The Grand Prix Weigel racers, at present under construction, will have eight-cylinder engine, the same four-cylinder group used in the 40-horsepower touring machine being mounted in duplicate.



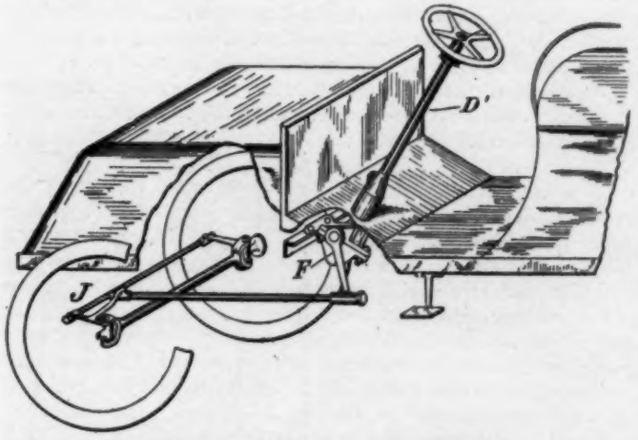
PEERLESS QUARTETTE ON WINTER TRY-OUT.

Automobiling is an all-the-year pastime these days, and in consequence there are many winter try-outs of the new models. A car that has attracted much attention at the shows is the 1907 30-35-horsepower Peerless, the designer of which is Charles Schmidt, who came to this country from France in the early days of the industry, being at that time associated with Henry Fournier in Mors interests. Subsequently Schmidt, who rode with Fournier when that driver captured the Paris-Bordeaux and Paris-Berlin races and alternated with him at the wheel in the latter event, constructed the Packard *Gray Wolf* and piloted it over the Florida course to a mark of :46 2-5. At that time this was only two-fifths of a second behind the world's record held by a car of twice the horsepower of the *Wolf*, which, however, clipped the American straightaway mark of :51 4-5, then possessed by Fournier and a high-powered Mors. It was a case where the pupil had progressed, built and driven a car faster than the master. Some day there may be a Peerless in the Vanderbilt race, and there are those who would like to see what Schmidt can do under present conditions. His success with the 24-horsepower *Gray Wolf* brought him a plentiful supply of fame.

President L. H. Kittredge, of the Peerless Motor Car Company, occupies the seat alongside of the designer, behind him is Sales Manager W. H. Kirkpatrick, and in the other tonneau seat is E. H. Parkhurst, the vice-president and general manager.

STEERING GEAR BASIC PATENT.

Applications for patents are things that lie dormant so long that they are usually forgotten by everyone but the applicant himself. Then the patent issues and the cat is out of the bag. This is a process that has been repeated so frequently in the automobile industry that manufacturers have become familiar with it; so much so that the fact that what is claimed to be a basic patent on steering devices has just been issued to A. L. Riker will probably not occasion the surprise it otherwise might. Mr. Riker made his application for a patent on May 15, 1902, and assigned his rights to the Electric Vehicle Company, Hartford, Conn., to which company the patent issued on January 8, 1907, its number being 840,660. That there is considerable foundation for regarding it as a basic patent will be evident from the fact that its claims cover almost every form of steering mechanism now in general use.



DETAILS COVERED BY THE RIKER PATENT.

For instance, take the first claim of the patent, which reads as follows: "The combination of a steering pillar or shaft rotatable about its axis to steer a vehicle, a block or interengaging member movable axially thereon and means for guiding said block or interengaging member and preventing rotation thereof, and steering arm or lever attached to the end of said movable block." This is amplified by the next four claims, which it will be seen cover the essentials of the steering gear as now used by practically every car built. They read as follows:

2. "The combination of a steering pillar or shaft rotatable about its axis to steer a vehicle, a block or interengaging member movable axially thereof, connections to prevent rotation thereof, and steering arm or lever attached to the end of said movable block, said lever moving in an arc, and means connecting said lever and block whereby the end of said lever is permitted to move in an arc slightly diverging from the axis of said block while the block moves directly therein."

3. The combination of a steering pillar or shaft rotatable about its axis to steer a vehicle, a block or interengaging member movable axially thereof, a steering arm or lever attached to the end of said movable block, and means coacting with said block to prevent its rotation, interconnection mechanism between the pillar and the steering road-wheels of the vehicle, magnifying the motion transmitted, whereby a limited movement of the rotating shaft causes a sufficient deflecting movement of the road-wheels as and for the purpose described.

4. In combination with a steering pillar or shaft rotating about its axis to steer a vehicle, an interengaging member movable axially thereof, a steering arm or lever and connections between the latter and the axially-moving member, the axis of the said connection substantially intersecting the axis of the rotating shaft, the whole mechanism embodied as a unit of apparatus attachable to and detachable from said vehicle without the disconnection of the component parts.

5. The combination in a steering-pillar for a vehicle, of an independent traverse screw-block with flexible connections at one end and co-operating rotating steering-shaft and oscillating steering arm or lever pivoted to a part integral with the support for said steering-shaft pillar for the purpose described.

Other claims, the purport of which will be recognized as bearing particularly on devices in general use, are numbers 18, 19, 20, and 27, which, taken in connection with the accompanying drawings, reveal the wide scope of the patent.

"18. In steering mechanism for motor vehicles, a supporting and inclosing casing including means for attachment to the framework or body of the vehicle, said casing embodying a thrust-bearing and shaft-bearing substantially for the purpose described.

"19. In a steering mechanism for motor vehicles, an upright shaft, mechanism at the lower end of said shaft operatively connecting the same with an oscillating member projecting downwardly, a supporting and inclosing casing for the lower end of said shaft, an inlet to said casing from the upper part whereby the same can be used as and constitute an oil reservoir, substantially as and for the purpose described.

SECTIONAL VIEW STEERING COLUMN.

"20. In a steering gear for motor vehicles, including a rotating shaft and its operating hand wheel or lever, a rocking lever or arm and connections the deflectable road wheels, intermediate threaded connections for operating the latter by the former, said connections including a tabular casing, an interiorly-close-fitting shell with a threaded portion fixed thereto, and an engaging threaded member within the same whereby said casing, shell, and threaded member co-operate in supporting one another and in transmitting the motion from the hand-wheel to the rocking lever.

"27. In a steering gear for motor vehicles, the combination of interengaging threaded parts, a rocking lever, operative connections therefor of an inclosing and supporting casing comprising a plurality of sections or parts, said section or portions of the casing parted in a manner whereby ready removal or inspection or repair of the bearings of said mechanism is afforded."

AUTO MEETS SEVERE WEATHER CONDITIONS.

With the recent snow which has been blanketing New York City streets came the opportunity to prove the superiority of the automobile over the horse for coping with varied weather conditions. While the horses were tugging and slipping, and, in most cases, unable to drag their loads, the automobiles were in evidence and reigning supreme in all sections. None was more wideawake to prove the merits of the automobile than Harry H. Cobe, of the Cobe Automobile Company, New York agents for the Jackson car.

Mr. Cobe, with his four-cylinder 45-horsepower car, equipped with ropes, blankets and sand, drove around the city every day during the icy spell. On the rear of the car he carried a sign, "The Humane Car." With the car he helped the horses that happened to be in trouble—and many there were. One truck that was towed with its load aggregated a weight of about six tons. Another truck was pulled for about twenty blocks before it reached soft snow, where the horse could get a footing.

AUTO TRAINING FOR THE COURT ROOM.

No lawyer has had the strong searchlight of publicity directed at him with greater power in a long time than has Delphin M. Delmas, the advocate from the West who is in charge of the defence of Harry K. Thaw. Believing in the efficacy of plenty of fresh air, Mr. Delmas, in company with Henry McClay Pike, another lawyer of the celebrated case, has been taking a daily ride in a Franklin "air-cooler," supplied through the courtesy of Wyckoff, Church & Partridge.

TWENTY-NINE ENTRIES FOR THE GRAND PRIX

PARIS, Feb. 2.—The Grand Prix of the Automobile Club de France is certain with a total of twenty-nine machines, to furnish a good day's sport, but it will be lamentably lacking in internationality. Twenty-three of the twenty-nine are French racers, two are English, one is Italian, and three are Belgian. The complete list when Secretary Sautin closed his *dossier* last night was as follows:

1. Bayard-Clément (Albert Clément).
2. Bayard-Clément (Garcet).
3. Bayard-Clément (Gauderman).
4. Darracq (Wagner).
5. Darracq (Hanriot).
6. Darracq (Demogeot).
7. Motobloc (————).
8. Motobloc (————).
9. Motobloc (————).
10. Corre (D'Hespel).
11. Panhard & Levassor (Le Blon).
12. Panhard & Levassor (Heath).
13. Panhard & Levassor (Montsava).
14. Renault Frères (Szisz).
15. Renault Frères (Edmond).
16. Renault Frères (Richez).
17. Lorraine-Dietrich (Duray).
18. Lorraine-Dietrich (Rougier).
19. Lorraine-Dietrich (Gabriel).
20. Germain (Perpere).
21. Germain (Roch-Brault Fils).
22. Germain (Degrais).
23. Weigel (Lee-Guinness).
24. Weigel (Weigel).
25. Porthos (————).
26. Marchand (————).
27. Brasier (Bariller).
28. Brasier (Baras).
29. Brasier (Bablot).

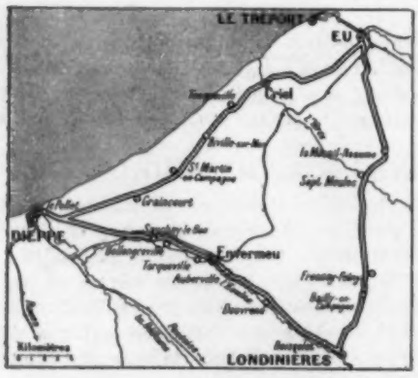
It will be noticed that Mercedes, Fiat, Itala and Rolls-Royce are all absent from the list of engagements. The abstention of the two Italian and the leading German firm is deeply regretted here. Despite C. L. Charley's emphatic declaration of a non-racing policy, it was firmly believed that the Canstatt firm would figure in the great French race, as last year. Fiat and Itala have always displayed such a sporting spirit that their abstention comes as a disagreeable surprise. England has abandoned its boycottage of French races by the engagement of two Weigel machines, Belgium has sent three of her best cars in the Germain, and Italy has a new champion in the solitary Marchand. None of the foreign machines have previously competed in an important road race, and in view of the poor display that has always been made by newcomers in French road races, they are not looked upon as very dangerous competitors. If such an exchange were possible, there is no doubt that the officials of the A. C. F. would barter the whole group for a Mercedes, a Fiat and an Itala. A really international race had been expected, and not even the big entrance list and the several new firms remove the feeling of disappointment. The newcomers among the French firms are Motobloc, Corre, and Porthos. Motobloc and Corre have a good reputation as builders of touring machines; Porthos, on the other hand, is practically unknown to the French public. There are a number of new drivers; Gauderman, of the Bayard-Clément team, has not previously held the steering wheel of a flyer in a first-rate contest, but he is looked upon as an equal of his companions, Albert Clément and Garcet. As a footballer and all-round athlete he has few equals. A long training at the Bayard-Clément factory has made of him a first-rate mechanic. It is not generally known that Gauderman accompanied Albert Clément, of whom he is a close friend, during his trip to America for the first Vanderbilt Cup contest.

THE EVREUX CANDIDATE.

The Panhard team has been entirely remodeled. George Heath, known here as the gentleman driver, retains his post, and is joined by free lance Le Blon and Montsava, a gentleman driver, who has not previously figured in road racing, and who hides his identity under this *nom de guerre*. The three Belgian drivers to handle the Germain machines have received a thorough training in touring contests. The most sensational entry is that of the young English millionaire brewer, Lee Guinness, as driver of a British-built Weigel racer. Lee Guinness has made himself famous as the owner and driver of the 200-horsepower record-breaking Darracq machine.

M. Brasier, who has entered three machines, says that his 1907 flyers will be very similar to those of last year. They will be rather more powerful, developing 110-horsepower, against 100 last year, will have a number of detail improvements, and will have chain drive.

No definite decision has yet been arrived at regarding a circuit, but the probabilities are that the Seine Inferieure will be selected. Only two candidates now remain out of a first list of at least a dozen, the rivals being the Eure, with Evreux as its chief town, and Seine Inferieure, with Dieppe as headquarters. Both Evreux and Dieppe have offered a subsidy of $20,000 to the A. C. F., but the promise of the latter is regarded as more important than that of the former, the Seine Inferieure district being one which draws to it thousands of holiday makers every year. Evreux, on the other hand, has no charms beyond its good roads, and, profiting by past experience, the Club is inclined to hesitate at the offer of a big subvention from a poor district. Being on the seashore, Dieppe would receive hundreds of Englishmen for the race, and it is quite natural to expect that numbers of Parisians would choose this seaside resort for their holiday if there was the additional attraction of an automobile race. The Grand Prix must be a paying affair this year, hence the importance of the choice of a course. The total income from the Grand Prix can be estimated at not less than $75,000. Entrance fees give $29,000, subsidy $20,000, and $26,000 is a very moderate estimate for grand stands, programs, advertising, etc. Last year, with an income of about $55,000, the A. A. A. realized a profit of $15,000 on the Vanderbilt contest, which sum is being employed for the benefit of automobiling in general. The French club has never shown a balance and last year had a heavy loss on its race.



PROPOSED ROUTE NEAR DIEPPE.

THE LITTLE GRAND PRIX IN JEOPARDY.

PARIS, Feb. 2.—Judging from the present conditions of the engagement list, the Sporting Commission Cup, sometimes known as Grand Prix No. 2, will not be a huge success. The race will be run either the day before or the day after the Grand Prix, and on the same course. Regulations are practically the same as for the Grand Prix, except that the fuel allowance will be reduced by one-half—3.3 gallons per 62.1 miles—and that the distance is lowered to about 310 miles. It was thought that under such regulations many firms unable to build special 140-horsepower flyers would make the few necessary alterations and compete with stock touring machines of forty or fifty-horsepower. Up to the present such has not been the case, and of the sixty to ninety machines which the committee counted as certain starters only three have put in an appearance. They are Gillet Forest, driver De la Touloubre; and two Darracq machines, with Wagner and Hanriot as pilots. As for the Grand Prix, there is no weight limit, and instead of stock touring machines stripped of all accessories and provided with more efficient carbureters, the racers will probably be featherweight freaks. Under such conditions everybody knows that the prize will go to a certain world-famed factory on the banks of the Seine. All objections would be removed by imposing a minimum weight, but if this were done now the two manufacturers already engaged would have just cause for complaint. Prompt action will have to be taken if the race is to be saved from complete failure, for the last day on which engagements for the contest will be received is Friday, February 15.

The French press and manufacturers are always unanimous on the need of a minimum weight limit.

FRENCH TOURING CONTEST IS CERTAIN.

PARIS, Feb. 3.—The Marquis de Dion's speed contest for touring automobiles has been received with enthusiasm in auto circles here. Officially the scheme is only in the proposition stage, but its acceptance by the A. C. F. is a foregone conclusion, and details of organization are being arranged. The event will consist of 1,000 miles endurance test in five or six days, and a speed test of 250 miles on a 50-miles circuit near Trouville. For the race a limited consumption of 3.7 gallons per 62.1 miles has been decided upon. A weight limit of 3,527 pounds including four passengers averaging 154 pounds each, will be imposed. Trouville will be chosen as headquarters, the tour starting and ending at this gay watering place during the first week in August. The Trouville circuit consists of 50 miles of the finest roads in France; in the opinion of many it is more suited for a speed contest than the circuits proposed for the Grand Prix. This corner of Normandy is extremely picturesque, the road surface is good, the width is never less than 32 feet, and in many places 60 feet; there are long straight stretches, switchback runs with 10 and 12 per cent. grade; not an important village on the course, and only one turn that cannot be taken at high speed. The cooperation of the press has been obtained in this competition, and every important Paris journal will give a gold medal to be encased in the gold cup offered by the Automobile Club of France. It will be noted that there is much resemblance between the Marquis de Dion's Press Cup race and the Sporting Commission Cup contest. The latter fixes the fuel allowance at 3.3 gallons per 62.1 miles, the former gives 3.7 gallons for the same distance. The eliminating tour and minimum weight limit, however, make the Trouville race impossible for lightweights.

THE COMING HERKOMER COMPETITION IN JUNE

BERLIN, Feb. 4.—Regulations for the Herkomer contest have now been made public and differ slightly from those of the previous years, inasmuch as everything has been done to strengthen the absolutely touring aspect of the competition. The contest is open to all motor vehicles of from 2.5 to 11 liters cylinder capacity privately owned by members of the foreign recognized and German clubs, each car to have at least four comfortable seats, bonnet, mud-guards, three lamps (one in rear), two brakes, exhaust and easy steps. Only petrol of a specific gravity of from 680 upwards may be used; additions of any kind are prohibited. The cars must be driven by amateurs; i.e., members of the above corporations not receiving any kind of recompense. The entry fee is $90 per car until April 15; after this time until May 15 entries will only be accepted accompanied by double fees. The fees cover the liability, personal injuries, damages and fire insurances. The official program is as follows:

June 4—Examination of cars.

June 5—Dresden, Freibreg, Chemnitz, Zwickau, Leipzig, Naumburg, Weimar, Gotha, Eisenach, 227 miles.

June 6—Eisenach, Meiningen, Kessingen, Schweinfurt, Wuerzburg, Wertheim, Eberbach, Heidelberg, Mannheim, 209 miles.

June 7—Mannheim, Karlsruhe, Aachern, Oppenau, Kniebis, Freudenstadt, Horb, Sielz, Rottweil, Tuttlingen, Lindau, 228 miles.

June 8—Lindau, Weiler, Simmerberg, Immenstadt, Kempten, Fuessen, Weilheim, Starnberg, Forstenried, Munich, 142 miles. Speed trials in the Forstenried Park.

June 9—Exhibition of cars at Munich.

June 10—Munich, Bichel, Kochel, Kesselberg, Walchensee, Mittenwald, Partenkirchen, Oberammergau, Landsberg, Lechfeld, Augsburg, 141 miles. Hill climb on the Kesselberg road.

June 11—Augsburg, Donanwoerth, Noerdlingen, Lohr, Uffenheim, Wuerzburg, Post Rossbrunn, Marktheidenfeld, Aschaffenburg, Hanau, Frankfort A. M., 203 miles.

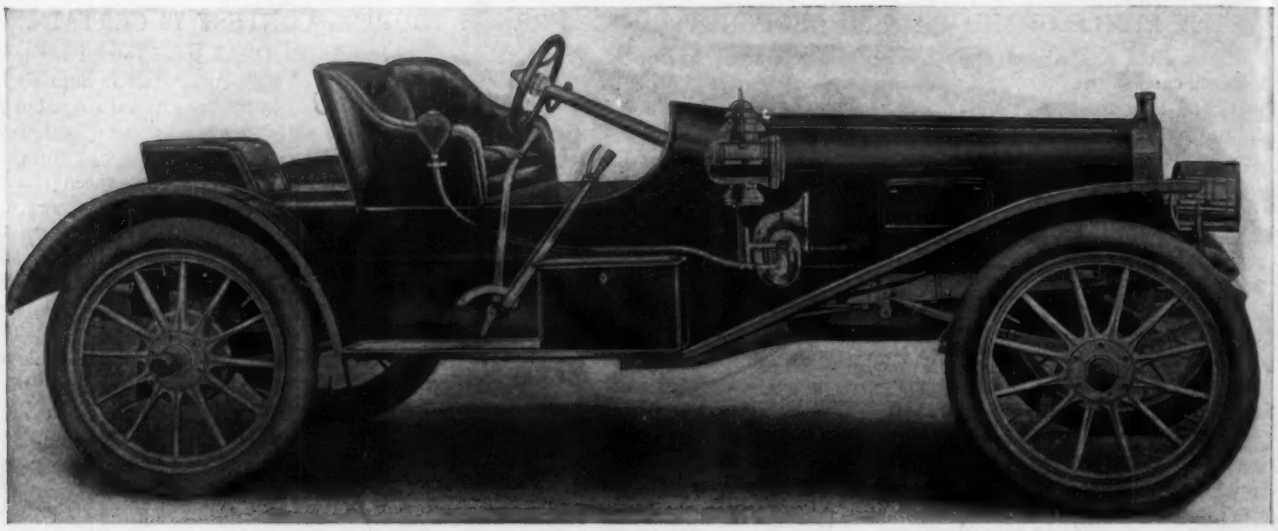
June 12—Prize distribution and banquet at Frankfort.

At least three adult passengers, including the observer, must be on every car throughout; on the speed and hill tests there must be four, or in lieu of the fourth 70 kilos of ballast. All repairs must be made by the driver and chauffeur, or in lieu of such by a designated passenger. At the various stages the cars will be handed over to the official commissioner, who takes them in charge and only returns them to the observers 45 minutes before the start. These 45 minutes may be utilized for cleaning, oiling, lubricating, filling tanks, etc. The changing of tire covers is excepted.

Awards will be made on the following basis: The victor is the car with the least points. One point will be debited for every commenced minute of involuntary stoppage; five points will be debited for changing and repairing tires, even if done in the 45 minutes before the start. Taking in water after starting time is three points; three will also be given for any repairs which overstep the 45 minutes limit before the start. A late commencement caused by anything else is one point. No points will be given for taking in oil and gasoline at official stations or changing and repairing inner tires. The speed and hill-climb tests will be awarded according to a special table not yet published, but the cars will be debited or credited one-tenth of a point for every commenced percentage faster or slower than the normal speed fixed for each. A car with 50 points has no claim on any award for the speed trials or tests. Should more than one car have the same number of points, the hill-climb and speed trial results will be taken into consideration. Passing will be allowed except in villages and at corners; it is likewise forbidden on the Munich-Kochel stretch and from Starnberg to the speed trials start in the Forstenried Park.

Valuable prizes have been given by the Imperial and Bavarian clubs as well as the cities of Dresden, Leipsic, Munich, Mannheim, etc.

Last year the United States was represented with a Pierce Great Arrow, driven by Percy Pierce. It is hoped that American cars will line up this time also.



HOW THE NEW FORD SIX-CYLINDER, 40-HORSEPOWER RUNABOUT APPEARS ON SIDE VIEW.

FORD BRINGS OUT "SIX-FORTY" RUNABOUT.

Taking advantage of the very general demand that exists for the high-powered runabout at the present time, the makers of the Ford have decided to feature a car of this type in their line for the coming season. The chassis of the six-cylinder Ford lends itself readily to an extremely racy looking runabout body, as will be evident at a glance from the accompanying photograph of the newcomer. The details of the power plant and remaining essentials of the runabout are to be the same as the touring car, with the exception of the wheels, which are 36 inches in diameter, in place of the 34-inch wheels used on the former, and also with the exception of the mudguards, which have been designed especially to blend with the lines of the car. The wheelbase is 120 inches, and, over all, the car measures about thirteen feet.

Its every line is indicative of speed and easy riding qualities, the long bonnet, denoting the six-cylinder motor, being even more accentuated by the recessed dash forming a protective cover for the electrical equipment. A unique feature of the body design of the car is to be found in the combination of the dash and body, the under body extending forward in a straight line from the bottom of the seats, thus protecting the feet and legs of the driver without the necessity of a gate between the front seats and the dash. The seats have been placed so low that the legs of occupants will be almost horizontal. A detachable rumble seat is provided in the rear for the accommodation of a chauffeur or extra passenger, and when not in place a trunk may be carried instead, attachments and straps being provided for that purpose. The equipment throughout is the same as on the touring car, the new runabout listing at $2,800 in complete running order and ready for the operator.

A TEXAS BUICK AUTO STAGE LINE.

FORT WORTH, TEX., Feb. 11.—R. L. Slaughter and G. B. Garner, of Midland, have established a route for an automobile line between Big Springs and Lamesa and Lubbock, a distance of approximately 100 miles. They are representatives of the West Texas Auto Company, which owns ten Buick machines and are now making arrangements for starting the line. They will make a contract to run every day in the year except Sundays, rain or shine. In connection with the line they will establish a garage in Big Springs, and will keep a sufficient number of machines in that city to prevent an interruption of the daily service between Big Springs and Lubbock. In making this trip the line will cross five counties in which no railroads are running, being almost a pioneer line of any kind through what is almost exclusively a cattle country.

RULES FOR THE EUROPEAN INVASION.

Detailed rules have now been drawn up for the tour in Europe by American automobile manufacturers with American built machines for the Gold Cup offered by a group of prominent sportsmen. Entries for this event will be received up to May 1, and must be accompanied by at least 25 per cent. of the total fee. Particulars required are make of car, description of model, horsepower, description of body, number of seats, name of driver, passengers, etc. Cars will arrive in New York by May 30, and must be equipped with a reliable speedometer. On arriving at Havre the machines will be weighed with their full quota of passengers, baggage, etc. The frame, cylinders, driving shaft, fly wheel, gear shafts, clutch, crank shaft, radiators, steering post, wheels, axles, springs, etc., will be stamped and the existence of such stamps at the end of the run will be verified. Changes of tires and common repairs will be allowed on the road and in the garages, but penalties will be inflicted for important changes such as the following: Change of frame, cylinder, crank-shaft, front or rear axle, 300 points each; reforging any part of frame, change of driving shaft or clutch, 250 points each; reforging driving shaft, clutch, or axles, changing radiator, 200 points each; change of gear shaft or steering post, 150 points; change of fly wheel, 100 points; change of gear case, 75 points; change of wheels, springs, or crank case, 50 points each. All changes to any of the stamped parts must be reported at the close of the day's run. Any kind of tires may be used, but if spring wheels are employed they must be of American manufacture. According to the speed laws of the country, the nature of the roads and the configuration of the country traversed, a reasonable average speed will be indicated for each day's run. Speeding will not be allowed; any proved cases of excessive speed will be penalized by the jury. Hill climbing and speed tests will be held at the termination of the tour near Liverpool, and the American Gold Cup will remain in the temporary possession of the winner until won in a similar contest by another contestant in a following tour. The exact date of starting from New York has not yet been fixed.

M. MICHELIN ARRIVES IN NEW YORK.

M. Andre Michelin, director of the important French tire manufactory bearing his name, arrived in New York on board *La Savoie* last Saturday. M. Michelin, who is one of the busiest men in the French automobile world, and who has probably played a greater part in the development of the tire industry than any man living, will only stay in this country a few days to supervise Michelin American interests.

EDISON THINKS HIS PLAYTIME IS HERE.

Having fulfilled, less a decade, the Biblical restriction which says that man's life shall consist of three score years and ten, Thomas Alva Edison, the great inventor, is of the opinion that he is entitled to a vacation, and intends to take one. Sunday, February 10, was his 60th anniversary.

"I have been making experiments with electricity for 45 years," said Mr. Edison, "but during that time I have been turning them to commercial use so fast that I have never had a chance just to play with electricity for the fun of the thing, to see how much I can find out about it. It is a pleasure I have long been promising myself, and from to-morrow on I am going to give myself up to it.

"I have been deaf since I was a boy, but my hearing has been getting worse steadily, and it may not be long before it leaves me entirely, so I want to play with my phonograph while I can still hear it. The recently announced invention of submarine sound telegraphy interests me greatly, as does Dr. Cahill's telharmonium, and I may investigate them in my holiday. I am 60 years old, but only 30 in point of enthusiasm.

"My principal work in the last year has been the perfection of my storage battery. Some hundred trucks are using the earlier models in New York, but the batteries did not last as long as I thought they would. About two years was their average life. This would not solve the problem of vehicular transportation in the large cities. A battery of, say, three and a half years' life would.

"I went to work to find out what the trouble was and I found it. I shall let it go out this summer. I believe that this new form of the battery will last seven years. I have batteries now that have lasted in experimental operation between three and four years. When these are in general use in the cities the congestion will be one-quarter as great. The weight is half that of the common battery, with twice the speed.

"I am having a touring automobile built on the lines of the gasoline car, but fitted with one of my batteries. I shall tour over New Jersey in it, and then later visit New England. I can get any speed I want from it, though I shall gear it for about 30 miles an hour. With one charging the battery will take it under the most unfavorable conditions 100 miles, or, under favorable conditions, 125 miles, with four people, at a speed of 30 miles an hour.

"This will practically do away with breakdowns, and will mean that every man can be his own chauffeur. It is very simple, the principal parts being a battery and a motor. A motor needs little attention."

NORTHERN'S PORT HURON BRANCH FINISHED.

PORT HURON, MICH., Feb. 11.—The building of the Port Huron branch of the Northern Automobile Company has been completed, A. J. Smith & Sons, the contractors, having completed the structure, which contains 50,000 feet of floor space and cost $40,000, in sixty days less than the time allotted. In addition to the main building work will begin immediately on the construction of a big warehouse in connection. As a result of the increased capacity of the plant given by the erection of the local branch in addition to the Detroit plant, the Northern Motor Car Company will make during the season of 1907 about 400 of its two-cylinder, 20-horsepower Northern touring cars.

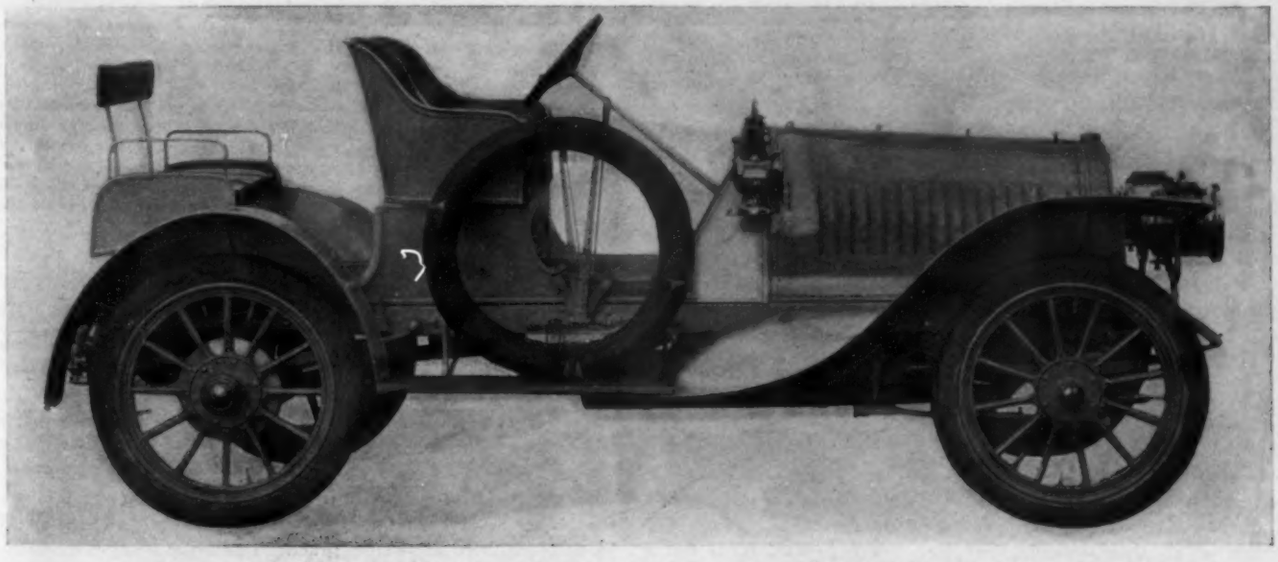
PITTSBURG'S HILLS EASY FOR AUTOS.

PITTSBURG, Feb. 11.—Two weeks of good sleighing on deep snows have taught Pittsburgers that the automobile is a winter as well as a summer mode of conveyance. Instead of high-priced trotters and pacers hitched to sleighs that cost hundreds of dollars as a few years ago, the roads on Sewickley Heights and in the Squirrel Hill district were thickly studded with big autos. The automobiles took the snowy hills in splendid shape as soon as the snow began to pack and automobiling was pronounced "finest ever." Not only the pleasure vehicles, but the big trucks went up many notches in the estimation of the general public, for they acted much better than on the ordinary muddy or slimy streets.

The driver of a 20-horsepower three-ton Knox truck, owned by the National Lead and Oil Company, assisted in easing eight blockades in one day. The Bindley Hardware Company put on a new Logan truck just before the snows came, and it worked so well that the company has since ordered two more.

AN ATTRACTIVE HIGH SPEED CAR.

The new Rainier high-speed runabout, an illustration of which is shown, is an automobile of particularly pleasing external appearance. One of its distinctive features is a rear folding seat for two persons, which, when folded down, gives the car the appearance of a standard turtle back without a rumble seat. Wheelbase is 104 inches, track 54 inches. The engine develops 35 horsepower, the mechanical features being similar to Model C with the exception that the gasoline tank on the runabout is placed under the bonnet instead of under the front seats. The new Rainier type of springs, by which a fastening is obtained without the use of a central bolt, is employed on this model. The rear platform spring is of three-point suspension type.



THE NEW RAINIER HIGH-SPEED RUNABOUT OF 35 HORSEPOWER, WITH GASOLINE TANK UNDER THE BONNET.

TWO OPPOSED BAY STATE BILLS.

BOSTON, Feb. 11.—An example of the extremities in proposed automobile laws with which the Massachusetts legislature has to deal this winter is given in two bills recently introduced in the House of Representatives and sent to the Committee on Roads and Bridges, which has charge of all the automobile bills. One of these bills proposes that hereafter no automobiles shall be licensed which are capable of making more than twenty miles an hour, the legal speed limit. One clause reads: "This act shall not apply to any automobile or motorcycle that could have been legally operated by a resident, as owner, manufacturer or dealer, under any license granted in this commonwealth prior to the time when this act goes into effect. Any person increasing or causing to be increased the speed capacity of an automobile or motorcycle, licensed under this act, above the speed limit set by section one, or any person operating an automobile or motorcycle licensed under the provisions of this act with knowledge that the speed capacity thereof is above such limit, shall be punished by a fine of not more than one hundred dollars or by imprisonment for not more than sixty days."

The other unusual bill has directly the opposite purpose of the foregoing and apparently is intended to make possible such contests on Massachusetts highways as the Vanderbilt Cup race. It reads: "The mayor of a city or the selectmen of a town may, in their discretion, upon special occasions and subject to reasonable conditions, close the public ways and grant permits to persons to operate automobiles at any rate of speed during a specified time and upon specified portions of the public ways."

PROVISIONS OF PROPOSED PENNSY LAW.

PHILADELPHIA, Feb. 11.—Motor patrols and ambulances, and physicians answering emergency calls, are exempted from the speed provisions of a bill introduced in the State Legislature by Representative Woodward, of Allegheny County. All others must observe the following regulations: Where buildings are an average of 100 yards apart, a rate of a mile in four minutes must not be exceeded, and where corners are to be turned or curves to be negotiated, the speed must be reduced to a mile in six minutes. Where buildings are farther apart than 100 yards, the maximum speed allowable is a mile in two minutes, with a slowing down to a mile in four minutes at turns when descending steep hills and when passing other vehicles.

The proposed law further provides for a fine of $100 or imprisonment for 30 days when an operator is convicted of driving a car while intoxicated; and that it shall be unlawful for a person under 18 years of age to receive an automobile license or drive a car. If passed, the measure will go into effect January 1, 1908.

New Jersey After Non-resident Offenders.

Local automobilists are greatly interested in a bill which has been introduced into the New Jersey Legislature authorizing the issuance of writs of attachment against non-residents of the State in suits for damages. It has been the custom for "foreign" automobilists to get outside the State limits as soon as possible after a mix-up. The proposed bill will permit the immediate issue of a writ of attachment and the holding of the car at the place where the accident or collision occurred, pending the adjustment of the damage claims.

LONG FOREIGN TOUR IN A STODDARD-DAYTON.

What the American automobile is capable of is well demonstrated by the tour of 16,000 miles made by Dr. J. W. White, of the University of Pennsylvania, in a 40-horsepower Stoddard-Dayton. Doctor and Mrs. White returned from Alexandria, Egypt, on the *Cedric*, during the past week, after an extended tour throughout the Continent in their car. Dr. White said that in all that distance they had never been delayed by a serious breakdown.

A REPORT ON AUTO INSURANCE.

ALBANY, N. Y., Feb. 11.—In his annual report to the legislature State Superintendent of Insurance Otto Kelsey thus recommends automobile insurance:

Automobile Insurance.—Inquiries received at the Department indicate a growing demand for protection of this character. It seems to be the desire of some of the insurance underwriters to have the privilege of protecting automobile owners from the following hazards:

Personal accident to the owner;
Personal accident to his engineer or any passenger;
Personal accident to any other person injured by his car;
Property damage to the car by reason of collision or other accident;
Property damage to another car or vehicle by reason of collision with car insured.

All of these hazards properly fall under the business of casualty insurance. Personal injury to the owner may now be provided for under subdivision 2 of Section 70; to his employee or any other person under subdivision 3. The various subdivisions of this section, however, do not contemplate assuming a property damage hazard except as property may be damaged incident to burglary plate glass breakage, or by reason of steam boiler explosions. It may be desirable by express provision in the law to recognize damages to property in connection with the running of automobiles. The privilege should certainly be limited to the use of automobiles, and the property damage of the car, or caused by the car to other property, should be distinctly provided for in a new subdivision of section 70.

A NEW YORK AUTO INSURANCE MEASURE.

ALBANY, N. Y., Feb. 11.—Assemblyman Young's bill, amending the insurance law to provide for the organization of companies to insure "against loss of damage to property resulting from accident to a duly licensed automobile, and against loss or damage to property resulting from accident when caused by a duly licensed automobile," has passed the Assembly without objection. It is now in the Senate committee on insurance.

TOLL FOR AUTOS IN NEW YORK STATE?

ALBANY, N. Y., Feb. 12.—At the Monday night session of the legislature, Assemblyman G. H. Whitney, of Saratoga, introduced the following bill to make owners of motor vehicles pay toll wherever there is a toll gate. The bill reads:

An Act to regulate, fix and prescribe tolls for motor vehicles traveling upon toll roads and bridges, where such tolls are not otherwise prescribed by law.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Where a different rate is not otherwise prescribed or permitted by law, any person or corporation maintaining a plank road, turnpike road or bridge, and authorized, or which shall be hereafter authorized, to receive tolls for the passage of vehicles over the same, may charge and receive for each and every motor vehicle propelled by any power other than animal power, passing over the same, a toll rate not greater than the maximum rate allowed by law to be charged and received for the passage of a vehicle drawn over such road or bridge by two or more animals, provided that for such motor vehicles designed to carry only a single person the rate of toll charged or received shall not exceed the maximum rate allowed by law to be charged and received for the passage of a vehicle drawn over such road or bridge, without a load, by a single animal.

Section 2. This act shall take effect immediately.

PITTSBURG HAS A PRACTICAL AUTO SCHOOL.

PITTSBURG, Feb. 11.—A decided feature in the automobile situation in Pittsburg this year is the new Auto Transportation School, at 5906 Penn avenue, East End, one square from the "bunch." When started a few weeks ago many predicted that it would die a quick death. Instead the big building is crowded day and night with learners, both beginners and men and women who have driven their own cars for years. All sorts of information relative to the handling of automobiles and engines of all kinds is imparted and actual practice in driving a car is given the members of the big class.

UNIVERSITY AUTOMOBILE COMPANY'S GARAGE, NEW HAVEN.

Connecticut's Center of Learning Has New Garage.

A new garage, one of the few specially designed and built for the purpose for which it is being used, has been opened at St. John and Olive streets, New Haven, Conn., by the Universal Automobile Company. The Olive street building measures 45 by 200 feet; St. John street has 35 by 100 feet. The garage is fitted throughout in first-class style, complete with machine shop, vulcanizing plant, hot water heating, ladies' room, private lockers, and has accommodation for 200 cars. In addition to holding agencies for several well-known automobiles, the company builds the Continental car in two models: a 30-horsepower shaft-driven runabout and a 40-horsepower touring car.

New Type of Garage and Salesroom at Louisville.

Easy entrance and exit is an original and valuable feature of the new automobile garage built by Longest Brothers Company, Inc., of Louisville, Ky. As will be seen from the engraving, the showroom occupies the center portion of the building, with a doorway on each side. Entering or leaving the garage, usually a matter requiring a certain amount of skill, is in this case a very simple affair, for there is no danger of suddenly finding the passage obstructed by a car coming in the opposite direction. The Longest Brothers' garage has 70 feet frontage and is 200 feet deep. The front building is used entirely as showrooms and office, behind this being the garage. On the second floor is an equally roomy repair shop.

Increased Facilities for Leading Toledo Garage.

The Rivers-Jacoby Automobile Company, of Toledo, O., has just increased its capitalization for the purpose of increasing its business. The company has been operating a garage on Monroe street, and it is the purpose to erect a large addition to its building and install a modern automobile repair shop. Those interested in the concern are A. D. Rivers, W. E. Jacoby, A. F. Nicklett, C. G. Smith and E. E. Davis.

Free Garage for a New York Theater's Patrons.

The Majestic Theater, of New York City, which is located in the heart of the automobile trade district, has made a bid for popularity by offering free garage accommodations during the continuance of the play to patrons desiring to make the trips to and from the theater in their automobiles. A neighboring garage has been engaged by the theater management to take care of the cars while the play is on.

Toronto's Big Garage in Course of Construction.

Canada will have its finest automobile garage in the new building being erected for Hyslop Brothers at the corner of Shuter and Victoria streets, Toronto. The new structure will have three stories 100 by 100 feet, of fireproof cement, fitted with elevators and every convenience. The cost will be $100,000.

Upper Ohio Valley Has a Fireproof Garage.

A garage to accommodate twelve large cars has just been completed in East Liverpool which will be under the direction of H. H. Knowles. It is planned to keep a complete outfit of supplies on hand continually. The garage is fireproof, the only one of its character in the upper Ohio Valley.

GLEANED AMONG THE GARAGES

The first automobile garage in Cheyenne, Wyo., has been opened by Wright & Lawson, at 1719 Capitol avenue.

There will be an automobile garage in connection with the new Harvey House, at present under construction, at Hutchinson, Kan.

A new fireproof garage will be erected shortly at First and Adams streets, Marion, Ind., to replace the one burned down recently.

Millward & Cook have succeeded the Palace Automobile and Machine Company in the garage business at 208-214 West 124th street, New York City, at Seventh avenue drive.

About March 1 the new garage of the Woodstock Auto Company, at 1943 North Woodstock street, Philadelphia, will be completed. There will be accommodation for 200 cars.

A fine, large garage is soon to be built in Waterbury, Vt., by W. F. Davis, proprietor of Waterbury Inn. The building will be completed in time for the opening of the automobile season.

A lease has been secured by the Rockford (Ill.) Engineering Company of the new Cutler building, in that city, and it will be fitted as a modern garage and be opened about May 1 for service.

The Imperial Motor Company, of Buffalo, N. Y., has filed plans in the bureau of building for the construction of a two-story brick store and garage to be erected at 1094 Main street at a cost of $30,000.

The southeast corner of One Hundred and First street and Broadway has been leased to the Bloomfields Leasing Company, which will erect stores and offices on the Broadway front and a fireproof garage on the rest of the plot.

The proposal to have a municipal garage for the City of New York under the Brooklyn Bridge, at the Brooklyn end, has been filed for future reference. The mayor says that such a location would not be convenient for all sections of the municipality.

LOUISVILLE'S LATEST APPROVED TYPE OF GARAGE.

Pitman-Nelson Auto Company has purchased the garage at 2608 Shattuck avenue, Berkeley, Cal., to be known in future as the Shattuck Avenue Garage. Another garage belonging to the same company is located at Addison street, a little below Shattuck avenue, that city.

Plans have been prepared for a garage 52 feet by 200 feet, to be located on Jefferson avenue, between Antoine and Hastings streets, Detroit, Mich. The new concern will be known as the Fee-Vincent Electric Car Company, and will handle electric vehicles only. The Woods electric agency has been secured.

The Winton Motor Carriage Company has let the contract to Gailey & Chambers for its $30,000 garage to be built in Beatty street, East End, Pittsburg, Pa., one square from the "Bunch." This is on a leased site adjoining the Winton garage, which was burned a few weeks ago.

Arthur Gardiner, well known in automobiling as the result of his Rambler connections, is building a new garage at Kenosha, Wis., which will be opened in the near future. Kenosha is on the direct line between Chicago and Milwaukee, and a garage in that city will be a great convenience to tourists. Mr. Gardiner will also be remembered as one of the old-time champions of cycling.

The Standard Automobile Company, of Pittsburg, Pa., has leased from Nicola & Shenk one-half of the first floor of the new Century Building, in Seventh street near Penn avenue, for a downtown garage. The building is a twelve-story reinforced concrete structure, the highest of its kind in the city. It gets one of the most central locations downtown, and the quarters will be finished and fitted up to its order. This lease is significant, as it makes five big East End firms which now have downtown garages, the others being the Banker Brothers Company, which lately leased a big room in Diamond street; the Keystone Automobile Company, which occupies a large space on the first floor of the Fulton skyscraper; the D. P. Collins Company, in Seventh avenue, and E. D. Nevin, with the Darracq agency at 507 Wood street.

MR. WINKLEY ON TRADE PUBLICATIONS.

At the monthly meeting and dinner of the New York Advertising League held at the rooms of the Aldine Association, January 29, Robert L. Winkley, manager of the department of publicity of the Pope Manufacturing Company, spoke on "The Ethics of Advertising," and said in part:

The trade paper proposition, too, has received its share of discussion. Personally, again, I am very strong in favor of a liberal use of space in these mediums. The traveling salesmen and dealers throughout the country are constant readers of trade papers that draw from them an inspiration which comes in like form from no other source. Their use brings the manufacturer close to the selling end of the business and he gets the benefit of that "word of mouth" publicity—one of the most valuable kind of advertising. I don't mean by this that trade papers are lacking in those elements we look for in publications of general circulation, but I would emphasize this point as of importance in the consideration of the subject: There are four specific view points—that of the maker, the seller, the publisher and the user, and the ethics of each should be studied, determined and carefully observed. The maker who forges to the front and accomplishes something for the best interests of the industry is entitled to have the columns of the papers open to the news items in connection with his work, and I find the editors as a rule ready and willing to co-operate in spreading abroad the description of new and valuable inventions which are of interest to the public.

ACTIVITIES OF THE A. C. OF BUFFALO.

BUFFALO, Feb. 11.—Owing to much annoyance local automobilists are having from automobile thieves, the Automobile Club of Buffalo has decided to offer a reward of $50 for the arrest and conviction of any person stealing an automobile which is the property of a member of the club.

The Automobile Club has appointed a committee of three, composed of President Seymour P. White, Treasurer John M. Satterfield and Director Charles Clifton to undertake the preliminary investigations for the proposed boulevard from Buffalo to Niagara Falls.

AN ENTHUSIASTIC AUTO FAMILY.

George J. Grossman, president of the United States Title Guaranty & Indemnity Company, No. 160 Broadway, New York City, has tendered his resignation, and in the immediate future will become identified with the automobile industry in company with his two sons, Mortimer M. and Wallace G. Grossman, to whom it is said he has given $100,000 to carry on experimental and manufacturing work in automobiles.

"Yes, I think we are automobile cranks," says Mr. Grossman, "and I hope and believe that my boys will turn out the perfect car of the future, which will be an electric. We propose erecting a mammoth garage and experimental station at White Plains, N. Y., which will cover a city block and a half, will have the largest concrete span in the world, and I think will also be the largest garage ever built."

A TEST OF THE MIDGLEY TREAD.

Hiram Percy Maxim, chief engineer of the Electric Vehicle Company, Hartford, Conn., has just made an especially severe test of the Midgley Tread, which the Hartford Rubber Works Company has recently brought out to solve the side slip problem on their Dunlop and Clincher type tires. He drove a 24-horsepower Columbia, a touring car, carrying three people, up Church street hill, Hartford, a 22 per cent. grade, eight inches deep with snow, while the ground underneath was covered with ice from a recent thaw. This hill is so bad that it is seldom used by any form of vehicle, even in summer. Two 32x4 rear tires with the Midgley Tread was the equipment, regular smooth tires being used in front.

Not only was there no tendency to slip, but Mr. Maxim was able to stop in the middle of the hill and "pick up" again from a stand-still. He adds, "I consider this a very severe test on any kind of tire, and it shows the great advantage of a lot of little points, rather than a few large ones." As a matter of fact there are always not less than 200 separate and distinct points in contact with the road surface at one time; and in an average-size Dunlop tire with Midgley Tread there are 3,344 points which grip the ground during one revolution of a wheel.

TESTING THE MIDGLEY TREAD AT HARTFORD.

NEWS AND TRADE MISCELLANY.

Owing to its inability to have the name "Keystone" registered, the Penn Petroleum Company, of Philadelphia, has changed the name of its Keystone motor oils to Primus motor oils.

The Pope Motor Car Company, of Toledo, O., has advised the Hartford Suspension Company, of New York, that it is receiving a large number of orders for the Hartford shock absorber to be equipped on cars when shipped from the factory.

An error as to tire dimensions crept into the Morgan & Wright advertisement in the January 24 issue of THE AUTOMOBILE, making what should have been "30 x 3 1-2-inch" read "30 x 30 1-2-inch." As Mr. Hubbs, of the big Detroit company states: "We have not yet begun the manufacture of tires of this size."

The Reo Motor Car Company's Cleveland branch has been awarded a contract by the city of Cleveland for a runabout for the park engineer. This is the sixth Reo runabout now owned by the city of Cleveland, and in constant service by the municipal department heads. It is claimed that in every case the Reo company's bid was the full price of the car.

Holley Brothers Company, Detroit, Mich., the well-known carbureter manufacturing house, has closed a contract with Alexander Winton whereby it secures the exclusive right to manufacture for the general trade the new carbureter which made its appearance last fall on the Winton Model M and Type X-I-V. This carbureter has no auxiliary air inlet, and has demonstrated itself to be a highly satisfactory producer of gas.

The three-ton Reliance truck that made the recent trip from Detroit to Chicago was equipped with genuine Firestone side-wire motor tires, and much of the success of the trip, which was undoubtedly the longest officially recorded trip made by a commercial car in this country, was due to the "stick to business" qualities of the Firestones. At the finish of the journey the tires were in excellent condition, despite the rough, frozen roads and general hard usage.

The Rauch & Lang Carriage Company, of Cleveland, which for the past three years has been engaged in the manufacture of electric automobiles, has increased its capital stock from $75,000 to $250,000. A large addition to its manufacturing establishment will be erected, and the company hopes to complete it in time to take care of the demand next spring. C. L. F. Wieber, a prominent Cleveland merchant, has become identified with the company, and Harry N. Ravenscroft, associated with Mr. Wieber, will enter the sales department.

The Mitchell Motor Car Company, of Racine, Wis., has received a cablegram from its Paris agent, C. N. Sauerbach, urgently requesting delivery of sixty additional cars for the coming season, which is strongly indicative of the advance American machines are making abroad. M. Sauerbach's contract this year is for forty cars, and early last fall he secured an option on 200 Mitchells for 1908 delivery. The Mitchell people are making three models this year, a $1,000 runabout, a $2,000 touring car, and a $2,000 truck. As soon as the frost is out of the ground operations will be begun on further additions to the plant, which will enable an increase in the output to 2,500 cars annually.

Dr. E. G. Reinert, of Hartford, Conn., who owns a Mark XII Columbia electric runabout, was much in evidence during the recent heavy storm attending to his patients. The doctor up to the present time, according to his Veeder cyclometer, has driven his little electric 70,000 miles, the period of service extending back some seven years, when motor cars were few and far between. The doctor was one of the first to own a car in Hartford. He never makes use of any sort of chain grip, and has experienced but little tire trouble.

The Fellwock Automobile & Manufacturing Company has been organized in Evansville, Ind. Incorporation papers showing a capital stock of $30,000 have been filed, and the company is ready for manufacturing. Those interested are W. E. Fellwock, president; J. F. Fellwock, vice-president, and P. B. Fellwock, secretary and treasurer. It is stated that the company will have the agency for the Maxwell, the Stoddard-Dayton and the Baker electric cars, in addition to the extensive manufacturing it will conduct. A tonneau, or surrey seat, to sell at $50, and made to fit many of the standard runabouts, will be made. It will be furnished complete with steps, hook, rubber mat and tip, and it is asserted that it can be set on and securely fastened in thirty seconds. Turntables, tops and shields will be made. One of the principal top models is a detachable top to fit the Maxwell runabout. It is upholstered in cloth, has French bevel plates, is made from sound lumber and genuine leather. It will sell for $200. The front and rear glasses are hinged at the top, and can be swung up at will.

NEW AGENCIES ESTABLISHED.

J. L. B. Wilhide, 2329 Madison avenue, Baltimore, has been appointed agent for the Atlas commercial cars in that city, by the Knox Motor Truck Company, of Springfield, Mass.

The Stearns car will be handled at Los Angeles, Cal., by A. H. Braley, 400 South Spring street. The good hill-climbing qualities of the Stearns have made it a popular seller on the Pacific coast.

The Winton Motor Carriage Company announces that its new branch, about to be established in Detroit, is to be in the nature of a surprise to that city of automobiles. The interests of Frank Smith, the former representative, have been purchased, and his establishment at 248 Jefferson avenue will be continued until a suitable site for the erection of a modern salesroom and garage can be found. The new branch will be under the management of Thomas W. Henderson, son of the vice-president of the company.

The Consolidated Wagon & Machine Company, of Salt Lake City, Utah, Geo. T. Odell, general manager, has taken the agency for the Knox waterless pleasure and commercial vehicles for the states of Utah and Idaho. The Myronda Motor Car Company, 1012 North Grand avenue, St. Louis, has taken the agency for St. Louis and the adjoining counties in Illinois and Missouri; the Kentucky Automobile Company, of Louisville, Ky., for the State of Kentucky; A. A. Irion, Jr., for Waterbury, Conn., and vicinity.

Two new firms handling foreign cars have recently been added to Philadelphia's automobile colony, Louis I. Matthews and T. Hollingsworth Andrews, Jr., under the firm name of Matthews & Andrews, handling the Renault, Panhard, and Delaunay, in the Harrison building, and William E. Walter, representing the English Daimler, at 710-11 Girard building. Another foreign car to secure representation in the Quaker City during the past week was the Clément-Bayard, for which the Stehle Company, 205 North Broad street, and which also handles the York Pullman, has secured the local agency.

PERSONAL TRADE MENTION.

R. L. Kingston has just relinquished his connection with the Harburg Tire Company, of New York City. Frank G. Hill has been appointed the new sales manager.

Albert C. Galbraith has joined the selling forces of the International Rubber Company, of Milltown, N. J., and will travel in Pennsylvania, Maryland, Delaware, and Virginia.

A. S. LeVino announces his resignation as sales manager of the Ajax-Grieb Rubber Company, same to take effect this week. It is understood that Mr. LeVino is to become connected with a well-known automobile manufacturing company.

C. W. Kelsey, who has resigned as Eastern sales manager of the Maxwell-Briscoe Motor Company, states that his new connection will be announced in the near future. Mr. Kelsey recently visited the other side, and it is understood that his new position will be related to a foreign make.

C. E. Denzer, who has been for five years connected with The White Company, has been placed in charge of the White branch in Chicago, taking the place of Webb Jay, who is no longer connected with the organization. As announced some months ago, the Chicago office will be under the general supervision of C. A. Hawkins, Western sales manager of The White Company.

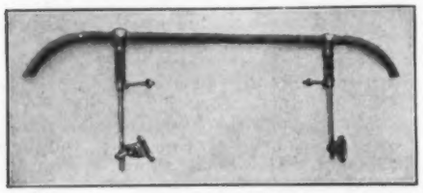
Recently it was erroneously stated in these columns, through information from an apparently unreliable source, that C. J. Metzger had resigned as sales manager of the Woods Motor Vehicle Company. Mr. Metzger gave public denial to the story by figuring as one of the most indefatigable workers of the Chicago show, it being said that as a result of his labors a substantial number of Woods orders had been booked.

AFTER A DEALER IN EVERY CITY.

A. H. Funke, of 83 Chambers street, New York, has been appointed sole agent for the United States for S. Smith & Son, of London, England, whose speedometer is widely and favorably known throughout Europe. Mr. Funke has a special proposition to make to the trade, and desires to hear from one good dealer in every city.

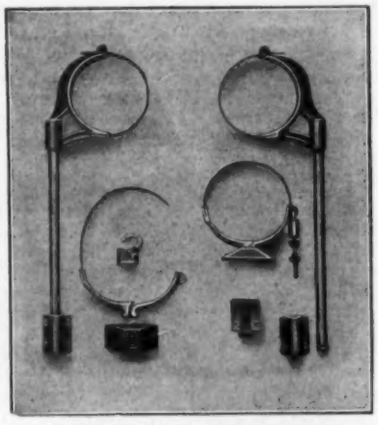
INFORMATION FOR AUTO USERS.

Useful Auto Appliances.—The Appliance Manufacturing Company, of West Jackson Boulevard, Chicago, has produced quite a number of useful fittings for the automobile. Their Amco fender is a new device, which, when attached to the automobile, effectively protects the lamps and radiator from injury arising from accidental collision with obstructions. It is substantially made of a heavy front tube, steel side rods, and



THE AMCO AUTOMOBILE FENDER.

solid brass hangers and guides and steel-coiled springs. Side blows, much more frequent in dense traffic than end-on blows, are equally well provided against by this apparatus. The fender is adjustable to fit any automobile. It is made in two finishes, the standard type, with black enameled front bar, polished brass tips, brackets and guides, listing at $20; and a special finish, smooth, ready for painters, with brass parts polished, selling at $18. The Amco extra tire holders are made in various symmetrical designs for holding either one or two tires. Lightness and strength have been combined, and security is assured by a Yale lock. There are no set-screw heads to tear



IMPROVED AMCO TIRE HOLDERS.

clothing, and a valuable feature of the holders is the ease with which they can be removed when not in use, without the aid of any tool. The Amco long-distance horn is another new appliance. It is blown from the exhaust of the engine, has a revolving reed, gives an unmistakable warning note and will not clog or get out of order.

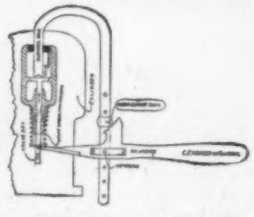
Luverne Solid Tire Wheels.—The usual procedure when an automobile owner decides to change from pneumatic to solid tires is to fit the solid tires on his old rims so as to save the trouble and expense of making any change on same. When he gets these solid tires on his rims they will be so fixed that he cannot use his pneumatic tires any more, and his solid tires are considerably less in diameter than the pneumatics were. Being small they ride hard, and, in addition, are more apt to skid. The method of the Luverne Automobile Company is to furnish a new set of wheels with Firestone side wire, solid tires attached. These wheels are made to fit customers' hubs, and as all artillery wheels are so made that the hubs can be taken out without damaging the wheels, it is possible to keep the old wheels, with pneumatic tires, in reserve to be used again if desired. The solid-tired wheels are made somewhat larger in diameter than the pneumatic-tired wheels. Thus 30 inches outside diameter would be increased to 31 or 32 inches, it being important with solid-tire wheels to use as large diameters as possible up to a certain point.

Grinding and Buffing Motors.—The Lamb Electric Company, of 32 Canal street, Grand Rapids, Mich., has placed on the market a direct current grinding and buffing motor for jewelers, silversmiths and metal workers. Some of its

DIRECT-CURRENT BUFFING MACHINE.

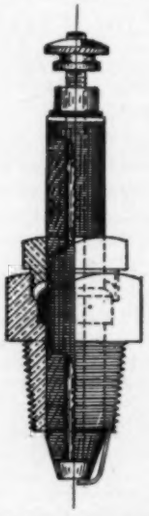
features are great torque or pulling power, smooth running obtained through perfect balancing and extra long and large bearings, brushes are of carbon and easily accessible, commutators are of copper thoroughly insulated with mica, armatures are the slotted type, with the conductors carefully embedded in the slots, field magnets are one-piece castings of high permeability, and field and armature coils are wound with the best magnet wire. The motors vary in size from 1-4 to 2-horsepower, their price being from $50 to $130. With each motor is included a snap switch, 10 feet flexible cord and an attachment plug with the 1-4-horsepower size. Starting boxes are furnished with the larger sizes, instead of snap switch cord and plug. Emery wheel can also be added as an extra.

Weeber Valve Tool.—As its name implies, the Weeber Valve tool, manufactured by the C. F. Weeber Manufacturing Company, Albany, N. Y., is designed to quickly remove valves from gasoline motors. In addition it is a very handy tool to aid in removing and placing tires and side rings, or compressing things where clamps are needed, thereby making it a very useful instrument for the auto kit or shop use. The selling price is $2.50.



TOOL FOR VALVE REMOVAL.

A Self-Cleaning Plug.—The entirely original feature of the Holsten spark plug, manufactured by the Triumph Engineering Company, 226-230 Lafayette street, New York, is that it is self-clean-



SECTIONAL VIEW OF HOLSTEN PLUG.

ing. The central pin or electrode is surrounded by a composition inside of the mica washers, giving superior insulation. The formation of any carbon on the sparking points is prevented by the valve movement of the insulating section. This movement is very slight, less than 1-32 of an inch, but sufficient to accomplish its purpose and keep the sparking points clean. It combines in a measure the advantages of the make-and-break system with the jump spark. At the time of the explosion the valve is tight, but it drops back on the down stroke of the piston far enough to make the electrodes touch, and keep them clean. As a proof of their confidence in the value of the plug the manufacturers give a five-years' guarantee.

Radium Polish is one of those little things necessary to the chauffeur who takes any interest in the condition of his brass work. It will produce a quick, easy polish on all kinds of metal, and is guaranteed not to scratch the finest surface. It is handily put up in the form of a round bar and does not spill or waste in use. Retail selling price is 10 cents, with a special discount to dealers and jobbers.

Aluminum Bodies.—As an example of the various types of aluminum bodies produced by them, J. M. Quinby & Company, of Newark, N. J., have produced an illustrated catalogue showing limousines, coupés, landaulets, double phaeton and runabout bodies, in their finished colorings. The firm announces that it has completed the extensive additions to its plant, and is now installing a complete repair shop for overhauling high-grade chassis. A number of machines are carried in stock, including Renault, F. I. A. T., Panhard, and Simplex, fitted with Quinby aluminum bodies.